HumRRO

Human Resources Research Organization

A Comparison of Students' KCCT and CTBS Scores Across Grade Levels

Andrea L. Sinclair
Arthur A. Thacker

Human Resources Research Organization (HumRRO)
10503 Timberwood Circle, Suite 101
Louisville, KY 40223
Phone (502) 339-9331
FAX (502) 339-9432

ABSTRACT

As a part of Kentucky's ongoing examination of the validity and reliability of the Commonwealth Accountability Testing System (CATS), we examined the stability of KCCT scores across grades, and the stability of CTBS scores across grades. Results indicate that students who do well on KCCT one year are likely to do well on KCCT on subsequent years. The same result was found for CTBS. Correlations between the same content areas (for Reading and Math) across grades ranged from $r = .63$ to $r = .74$ for KCCT, and from $r = .62$ to $r = .73$ for CTBS. Analyses were also conducted to examine the stability of demographic differences in scores over time. The results indicate that the gender, socioeconomic, and racial differences in scores remained relatively constant over time for both KCCT and CTBS. Overall, the results for KCCT and CTBS were very similar.

Stability of Students' CATS Scores over Time

EXECUTIVE SUMMARY

Background and Introduction

In 1989, the Kentucky Supreme Court ruled that the Commonwealth's system of public schooling was unconstitutional. As a result, in 1990 the General Assembly enacted the Kentucky Education Reform Act (KERA). Through KERA, the General Assembly mandated the creation and implementation of a statewide performance-based student assessment program and school accountability system. The Kentucky Instructional Results System (KIRIS) was established in 1992 as the state's assessment system to measure progress toward the learning goals established under KERA. Criticism of KIRIS, however, became widespread and in 1996 the Task Force on Public Education recommended changes in Kentucky's assessment and accountability system. In 1998, the Commonwealth Accountability Testing System (CATS) replaced KIRIS.

CATS includes both a norm-referenced test and a criterion-referenced test. The Kentucky Core Content Test (KCCT) is the criterion-referenced portion of CATS. The KCCT is administered in grades 4, 5, 7, 8, 10, and 11. KCCT targets an achievement domain developed by Kentucky educators. It assesses students in Reading, Math, Science, Social Studies, Arts & Humanities, and Practical Living/Vocational Studies[1]. The Comprehensive Test of Basic Skills (CTBS) is a nationally norm-referenced test that assesses students exiting grades 3, 6, and 9 in Reading, Language, and Math.

The purpose of this investigation is to provide evidence for the validity of CATS by establishing that across grades and years, students' CATS scores on the same content areas correlate positively. First, we examine the correlations between prior KCCT scores and later KCCT scores. Across grades and years we expect the same content areas on separate KCCT administrations to correlate positively. For example, students' KCCT 4th grade Reading scores should correlate positively with their KCCT 7th grade Reading scores. We also expect demographic differences in KCCT scores to remain stable over time. Second, we examine the stability of students' CTBS scores over time. As with KCCT scores, students' prior CTBS scores should correlate positively with their later CTBS scores. For example, it is expected that students' 3rd grade Reading scores should correlate positively with their 6th grade Reading scores. We also expect demographic differences in CTBS scores to remain stable. In sum, high-ability elementary school students are expected to become high-ability middle school students, and high ability middle school students are expected to become high-ability high school students. We do not expect these correlations to be perfect. Kentucky's accountability system relies on every school's ability to improve the performance of its students. Lastly, we expect the stability of students' KCCT scores to be similar to the stability of students' CTBS scores.

Description of Data

---

[1] The writing portion of the KCCT is administered in grades 4, 7, and 12, but is not investigated in this report.

Data for this report was provided by the Kentucky Department of Education (KDE). Separate KCCT files were provided for Kentucky public school students in grades 4, 5, 7, 8, 10, and 11 for the years 1999 through 2003. The CTBS data were also provided by KDE. CTBS data consisted of data files for Kentucky public school students in Grades 3, 6, and 9 for 2001 and 2004. Before comparing prior KCCT scores to latter KCCT scores and prior CTBS scores to latter CTBS scores, it was first necessary to merge the separate KCCT files and the separate CTBS files. For instance, 4th grade students' scores in the 2000 KCCT data file were merged with their 7th grade scores in the 2003 KCCT data file. Similarly, 3rd grade students' scores in the 2001 CTBS data file were merged with their 6th grade scores in the 2004 CTBS data file. The data for each student was merged using the student's last name, first name, middle initial, and date of birth.

Results

For both KCCT and CTBS the highest correlations tended to be between different content areas within the same grade. The magnitude of these within grade correlations were similar for KCCT ($r = .71$ to $r = .83$) and CTBS ($r = .73$ to $r = .74$), with KCCT intercorrelations being slightly higher. The next highest correlations for both KCCT and CTBS were the same subject correlations across grades/years. Table A displays same subject correlations for Reading and Math. Reading and Math are the two content areas that KCCT[2] and CTBS have in common. The Reading-to-Reading and Math-to-Math correlations are very similar for KCCT and CTBS. In fact, the correlations for elementary/middle school Reading are the same for both KCCT and CTBS. In all other cases the correlations only differ by .01 to .02. Also, it is interesting to note that the correlations for Math were higher than the correlations for Reading for both KCCT and CTBS. Finally, for both KCCT and CTBS the smallest correlations tended to be between different content areas over different grades/years.

---

[2] The elementary/middle school coefficients for Reading were selected from Table 29D ("KCCT Correlations Between 2000 Grade 4 and 2003 Grade 7"), and the coefficients for Math were selected from Table 30D ("KCCT Correlations Between 2000 Grade 5 and 2003 Grade 8"). The middle/high school coefficients for Reading were selected from Table 31D ("KCCT Correlations Between 2000 Grade 7 and 2003 Grade 10"), and the coefficients for Math were selected from Table 32D ("KCCT Correlations Between 2000 Grade 8 and 2003 Grade 11").

Table A. Comparison of Same Subject Correlations for KCCT and CTBS

	Elementary School to Middle School	
	KCCT	CTBS
Math—Math	.68	.66
Reading—Reading	.64	.64
	Middle School to High School	
	KCCT	CTBS
Math—Math	.73	.74
Reading—Reading	.69	.68

Note. Table A is replicated as Table 70X in Appendix X.

In addition to examining KCCT correlations and CTBS correlations, we also compared performance on these measures for students from varying backgrounds. The important validity issue was whether any differences between males and females, socioeconomic groups, or racial groups were larger for the later KCCT measure than for the prior KCCT measure, and for the later CTBS measure than for the prior CTBS measure. Differences between KCCT and CTBS for subgroups were explored in a previous report (Sinclair & Thacker, 2004). We expected gender, SES and racial differences to remain relatively stable over time. The results largely support these expectations for both KCCT and CTBS. The only point of departure between KCCT and CTBS was for the magnitude of the effect size differences between Whites and Hispanics. The magnitude of the effect was larger for KCCT than for CTBS, but only for the 2000 KCCT data. Overall, the findings are consistent with the NAEP results released by the National Center for Education Statistics (2004), which indicate that demographic differences (gender, SES, and race) in Reading and Math have remained relatively stable since the early 1990s.

Conclusion

Overall, the results from this report provide strong validity evidence for CATS. It is clear from the data that students who perform well on KCCT and CTBS in one grade are likely to perform well on KCCT and CTBS in later grades. Moreover, in general, neither gender, race, nor socioeconomic status appear to influence KCCT scores or CTBS scores any more than would be expected from observed differences in prior KCCT and CTBS performance. Therefore, this report adds to the growing validity evidence for CATS as a measure of student achievement.

Stability of Students' CATS Scores over Time

Table of Contents

List of Tables

A Comparison of Students' KCCT and CTBS Scores Across Grade Levels

BACKGROUND AND INTRODUCTION

In 1989, the Kentucky Supreme Court ruled that the Commonwealth's system of public schooling was unconstitutional. As a result, in 1990 the General Assembly enacted the Kentucky Education Reform Act (KERA). Through KERA, the General Assembly mandated the creation and implementation of a statewide performance-based student assessment program and school accountability system. The Kentucky Instructional Results System (KIRIS) was established in 1992 as the state's assessment system to measure progress toward the learning goals established under KERA. Criticism of KIRIS, however, became widespread and in 1996 the Task Force on Public Education recommended changes in Kentucky's assessment and accountability system. In 1998 the Commonwealth Accountability Testing System (CATS) replaced KIRIS.

Several changes were implemented during the transition from KIRIS to CATS. For example, multiple-choice components for each tested content area were added to the formula used to calculate school accountability indexes. The accountability indexes determine whether a school receives rewards, assistance, and/or additional scrutiny during its attempts to improve. Each school's index is related to an overall goal designed such that all schools will reach an accountability index of 100 out of a possible 140 by 2014. KIRIS used only open-response components to determine school accountability indexes. Open-response components are given twice the weight of multiple-choice components in the CATS index calculation. Open-response components have been included in the accountability system since its inception to ensure that Kentucky students are able to apply knowledge, rather than merely to recall disconnected facts.

CATS includes both a norm-referenced test and a criterion-referenced test. The Kentucky Core Content Test (KCCT) is the criterion-referenced portion of CATS. The KCCT is administered in grades 4, 5, 7, 8, 10, and 11. KCCT targets an achievement domain developed by Kentucky educators. It assesses students in Reading, Math, Science, Social Studies, Arts & Humanities, and Practical Living/Vocational Studies. The Comprehensive Test of Basic Skills (CTBS) is a nationally norm-referenced test that assesses students exiting grades 3, 6, and 9 in: (1) Reading, (2) Language, and (3) Math.

During the first years following the introduction of this new accountability system, it is critical that information on the validity of CATS exams be gathered. Bacci and colleagues took one step toward answering this question by investigating how KCCT scores related to other measures of educational achievement (Bacci, Koger, Hoffman, & Thacker, 2003). In particular, they examined relations between students' scores on KCCT and their scores from the American College Test (ACT). They found that students with higher ACT scores tended to have higher scale scores on KCCT assessments. Sinclair and Thacker (2004) took a second step toward establishing KCCT's validity by investigating how students' KCCT scores correlate with their scores from the Comprehensive Test of Basic Skills (CTBS). In both investigations, the relationships were not perfect (the correlations were around .60 - .70), but the trends were clear. The observed relationships

between KCCT and ACT, and between KCCT and CTBS were in the expected "Goldilocks" range. As described by Hoffman (1998), correlations between two different but similar assessments should neither be exceptionally high, nor exceptionally low. Correlations should not be too low because the tests assess achievement in similar content areas. However, because the tests are based on different content standards, use differently formatted items, and were designed for different purposes, the correlations should not be too high. Hoffman (1998) referred to this "not-too-high-not-too-low" range as the "Goldilocks" criterion. Because the correlations between KCCT and ACT, and between KCCT and CTBS met this Goldilocks criterion, the researchers concluded that there was strong evidence of KCCT's validity as a measure of student achievement.

The purpose of this report is to extend prior research by providing additional evidence for the validity of CATS. The first purpose of this report is to examine the correlations between prior KCCT scores and later KCCT scores. Across grades and years we expect the same content areas on separate KCCT administrations to correlate within the same "not-too-high, not-too-low" range as evidenced in the Bacci et al. (2003), and Sinclair and Thacker (2004) reports. For example, it is expected that students' KCCT 4th grade Reading score should correlate positively with their KCCT 7th grade Reading score. The second purpose of this study is to investigate the stability of students' CTBS scores over time. As with KCCT scores, we expect students' prior CTBS scores and later CTBS scores to correlate within the "not-too-high, not-too-low" range. For example, it is expected that students' 3rd grade Reading score should correlate positively with their 6th grade Reading score. In sum, we expect high-ability elementary school students to become high-ability middle school students, and high ability middle school students to become high-ability high school students. We do not expect these correlations to be perfect. Kentucky's accountability system relies on every school's ability to improve the performance of its students. Also, two separate tests cannot correlate perfectly because the relationship is affected by error variance. Finally, we expect the magnitude of KCCT-to-KCCT correlations to be similar to the magnitude of the CTBS-to-CTBS correlations. In other words, the stability of students' KCCT scores should be similar to the stability of students' CTBS scores.

STABILITY OF STUDENTS' KCCT SCORES

Description of KCCT Data

KCCT data were provided by the Kentucky Department of Education (KDE). Students' KCCT scores go through several transformations before they are reported. First, students' responses to each open-response item are categorized by trained scorers into one of five raw score categories which are assigned numerical values from 0 to 4. Correct multiple-choice responses receive one point. Points are then summed in order to calculate a raw score. Open-response and multiple-choice raw scores are then converted into an equated scale score, which can range from 325 to 800. In the scaling processes, the open-response components are weighted so that they count twice as much as multiple-choice components (KDE, 2002). Separate data files were provided for Kentucky public school students in grades 4, 5, 7, 8, 10, and 11 for the years 1999 through 2003. The data files consisted of a background data file (which included last

names, first names, middle initials, and birth dates), and a scale score file. The background data file and the scale score file were linked via a common test form identification number for that year and grade. Tables containing the descriptive statistics for KCCT data from 1999 through 2003 are presented in Table 1A – Table 5A in Appendix A. Table 1 below provides an example of those tables.

Table 1. KCCT Descriptive Statistics by Grade and Content Area for 1999 —Total Sample

		RD	SC	MA	SS	AH	PL
4th Grade	Mean	540.82	534.45	--	--	--	--
	S. D.	47.33	44.34	--	--	--	--
	N	49,101	49,101	--	--	--	--
5th Grade	Mean	--	--	548.46	533.33	499.57	498.68
	S. D.	--	--	49.14	42.70	71.06	70.92
	N	--	--	46,930	46,930	46,930	46,930
7th Grade	Mean	507.48	494.55	--	--	--	--
	S. D.	42.30	39.18	--	--	--	--
	N	48,457	48,457	--	--	--	--
8th Grade	Mean	--	--	519.90	500.02	497.62	497.78
	S. D.	--	--	51.53	50.70	67.87	68.66
	N	--	--	49,413	49,413	49,413	49,413
10th Grade	Mean	494.05	--	--	--	--	497.68
	S. D.	59.96	--	--	--	--	68.67
	N	46184	--	--	--	--	46184
11th Grade	Mean	--	531.99	519.41	534.30	496.53	--
	S. D.	--	51.32	60.51	61.99	68.09	--
	N	--	41,087	41,087	41,087	41,087	--

Note. This table is replicated in Appendix A, Table 1A.

Merging

Before comparing prior KCCT scores to latter KCCT scores, it was first necessary to merge the separate KCCT data files. For instance, 4th grade students' scores in the 2000 data file were merged with their 7th grade scores in the 2003 data file. The data for each student was merged using the student's last name, first name, middle initial, and date of birth. Given the available data, there were 17 possible merge combinations (e.g., 1999 Grade 4 and 2002 Grade 7, 2000 Grade 8 and 2002 Grade 10, etc.). Four attempts were made within each of the 17 merges to match student data. The first attempt to match student data was made on exact matches of last name, first name, date of birth and middle initial. The second attempt was made using last name, first name and date of birth. The third attempt was made using last name, first name truncated to the first four letters, and

date of birth. The fourth attempt was made using the last name truncated to the first four letters, the first name truncated to the first four letters, and the date of birth. After each attempt, three files were created: (1) successfully matched student data, (2) unmatched students from File 1, and (3) unmatched students from File 2. Each successive attempt was made using only the unmatched student files. The four successfully matched student data files were then combined. An average of approximately 82% of the original cases was retained for the 17 merges.

Table 6B in Appendix B displays the 17 merge combinations along with the number and percentage of students whose data successfully merged. Merges between consecutive years (e.g., 2001 – 2002) tended to have a greater percentage of successful matches than merges between nonconsecutive years (e.g., 2000 – 2003). The merging of the files may have been affected by student transience, and by inconsistent reporting of students' names across the years. For example, a student named 'Thomas' might report his name as 'Tom' during another year, and the two first names, even when truncated, would not match. Student errors and inconsistencies when coding their birthdates may also have caused a portion of students' files not to merge.

An additional analysis was conducted to verify that students retained in the final data set did not differ meaningfully on KCCT scores from those whose data failed to merge. Table 7C – Table 23C in Appendix C present the descriptive statistics for matched (i.e., merged) students compared with unmatched (i.e., unmerged) students. Table 2 below provides an example of those tables. Students whose data merged scored somewhat higher on all KCCT components than students whose data did not merge. For example, in the sample table below, the mean difference between matched and unmatched scores is 18.49 (approximately 1/3 standard deviation). The difference between matched and unmatched scale score means was typically less than one half of a standard deviation, with matched students always scoring higher. These findings are consistent with research of this type (e.g., Bacci et al., 2003; Sinclair & Thacker, 2004; Thacker & Hoffman, 1999), and while the differences are consistent they are not so large as to warrant concern that the unmatched sample differs dramatically from the matched sample.

Table 2. KCCT Descriptive Statistics for 1999 4th Grade and 2002 7th Grade Comparison

	Matched			Unmatched			Mean
1999 Grade 4	Mean	S. D.	N	Mean	S. D.	N	Difference
Reading	545.73	41.01	38,718	522.22	62.44	38,718	23.51
Science	538.77	37.71	38,718	518.34	60.55	38,718	20.43
2002 Grade 7							
Reading	513.89	35.92	38,718	498.25	50.25	38,718	15.64
Science	502.76	35.44	38,718	488.38	50.09	38,718	14.38

Note. This table is replicated in Appendix C, Table 7C.

Correlations Among KCCT Measures Over Time[3]

The purpose of this investigation is to provide further evidence for the validity of KCCT by establishing that across grades and years, students' KCCT scores on the same content areas correlate positively. Table 24D – Table 40D in Appendix D present the correlations among KCCT content areas for the 17 files of merged data. These tables differentiate between the following correlations:

- Correlations between the same content area across different grades/years (These correlations are in bold and underlined).
- Different content areas within the same grade/year (These correlations are in italics).
- Different content areas within different grades/years (These correlations are in bold, but not underlined).

The expectation is for the highest correlations to be between the same content areas across grades/years. Then, because of similarities in test-taking circumstances or other method effects, the next highest correlations are expected to be between different content areas within the same grade/year. Finally, the lowest correlations are expected to be between different content areas in different grades/years. Table 3 below is a representative example of the tables in Appendix D.

Table 3. Correlations Between KCCT 1999 5th Graders and KCCT 2002 8th Graders

Variables	1	2	3	4	5	6	7	8
Grade 5								
1. Math	1.00							
2. Social Studies	*.75*	1.00						
3. Arts & Humanities	*.61*	*.67*	1.00					
4. Practical Living	*.60*	*.65*	*.59*	1.00				
Grade 8								
5. Math	**<u>.69</u>**	**.61**	**.52**	.51	1.00			
6. Social Studies	**.63**	**<u>.66</u>**	**.58**	**.55**	*.77*	1.00		
7. Arts & Humanities	**.54**	**.59**	**<u>.52</u>**	**.48**	*.65*	*.75*	1.00	
8. Practical Living	**.53**	**.55**	**.49**	**<u>.48</u>**	*.63*	*.72*	*.66*	1.00

Note. This table is replicated in Appendix D, Table 25D.

The correlations for the same content areas across grades/years were highest for Math ($r = .68$ to $r = .74$), followed by Social Studies ($r = .65$ to $r = .71$), Reading ($r = .63$ to $r = .68$), Science ($r = .55$ to $r = .66$), Arts & Humanities ($r = .52$ to $r = .56$), and

---

[3] Given the extremely large sample sizes used in this report, tests of statistical significance are irrelevant. All reported relationships are statistically significant given the large sample size; consequently, tests of statistical significance are not included in this report.

Practical Living/Vocational Studies ($r = .48$ to $r = .54$). Contrary to expectations, these correlations did not consistently emerge as the strongest. Correlations between different content areas within the same grade (e.g., 5th grade Math and 5th grade Social Studies) were similar, and in several cases higher than the correlations between same content areas across grades/years (e.g., 5th grade Social Studies and 8th grade Social Studies). However, the strength of the within grade intercorrelations varied depending upon the content areas (i.e., subjects) being correlated. In particular, the intercorrelations for Reading, Science, Social Studies, and Math were highest ($r = .71$ to $r = .83$), while the subjects correlated with Arts & Humanities and Practical Living/Vocational Studies were lower. The intercorrelations between Arts & Humanities and Social Studies, however, were an exception; these within subject correlations ranged from $r = .66$ to $r = .76$. The lowest within grade correlations were between Practical Living/Vocational Studies and Arts & Humanities ($r = .59$). The Arts & Humanities test and Practical Living test each only have 10 items, whereas all other KCCT subject tests have 30 items. Two separate tests cannot correlate perfectly because the relationship is affected by error variance. Error variance is often represented by Cronbach's alpha (i.e., internal consistency). This statistic is affected to a large extent by the number of items on the test. Consequently, simply by virtue of Arts & Humanities and Practical Living/Vocational Studies having fewer items, we would expect these subject tests to have lower correlations with other subject tests, which is exactly what we found. Despite the fewer number of items on the Arts & Humanities test and the Practical Living/Vocational Studies test, their correlations are reasonably high.

It is important to note that the same subject tests were never administered in consecutive grades. For example, students taking the Reading test in Grade 4 would not take the Reading test again in Grade 5. With the exception of Science and Practical Living/Vocational Studies, administrations of subject tests are generally separated by three years. For instance, students take the Reading test in Grade 4 and again in Grade 7. In Appendix D, Table 24D – Table 34D display the correlation matrices for which same subject correlations are available. In other words, these tables display correlations between subjects for nonconsecutive grades/years. Table 35D – Table 40D display the correlation matrices for consecutive grades/years, meaning that there are no same-subject correlations in these tables. When the correlation matrices for nonconsecutive grades are contrasted with the correlation matrices for consecutive years, it becomes apparent that the length of time between tests has an impact on the strength of the correlations. Disregarding Arts & Humanities and Practical Living/Vocational Studies (which have substantially fewer test items and consistently smaller correlations), the correlations between different subjects for consecutive grades tended to be slightly stronger ($r = .64$ to $r = .75$) than the correlations between different subjects for nonconsecutive grades ($r = .58$ to $r = .73$). This finding is consistent with the notion that tests administered closer in time tend to have stronger correlations (Campbell & Fiske, 1959).

Finally, it is interesting to consider the correlations between same subjects for nonconsecutive grades in relation to the correlations between different subjects for consecutive grades. A comparison of the two sets of correlations reveals that their degree of correlation is quite similar. In particular, the same subject correlations across grades

ranged from $r = .48$ to $r = .74$ (with Practical Living/Vocational Studies accounting for the lower end), and the different subject consecutive grade correlations ranged from $r = .51$ to $r = .75$.

Gender, Socioeconomic and Racial Differences in KCCT Scores

Analyses were conducted to compare students' performance on the earlier administration of the KCCT tests (i.e., $KCCT_1$) with their performance on the later administration (i.e., $KCCT_2$). In particular, we were interested in examining whether gender differences, socioeconomic (SES) differences, and racial differences on KCCT remain stable over time. Prior research has established that these demographic groups tend to vary in their average test performance (e.g., Bacci, et al., 2003; Sinclair & Thacker, 2004). The important validity question for judging Kentucky's KCCT scores is whether any differences between males and females, socioeconomic groups, or racial groups become larger over time. Recent NAEP results released by the National Center for Education Statistics (2004) indicate that gender gaps, SES gaps, and racial gaps in 4th and 8th graders' Reading and Math scores have remained relatively stable since the early 1990s. The only exception was 4th grade math for which the score gap between African American and White students decreased between 1990 and 2003. Consistent with NAEP's general findings of stability in demographic gaps in scores, we also expect demographic differences in KCCT scores to remain relatively stable over time.

Of the 17 files of merged data, several contained duplicate grade combinations. In order to reduce the number of analyses, only the unique grade combinations and the most recent grade combinations were used to explore demographic differences. This resulted in six files being included in this section of the analyses (see Table 41E in Appendix E for a complete list). Descriptive statistics and effect size statistics were computed for all six KCCT content areas. The effect sizes are a measure of the magnitude of the difference between the two groups being compared. Unlike significance tests, these indices are independent of sample size. While there is a wide array of formulas used to measure effect sizes, Cohen's d (1988) is among the more popular and is a measure of the difference between the means divided by their pooled standard deviation. Cohen defined effect sizes as "small, $d = .2$," medium, $d = .5$," and "large, $d = .8$."

Gender. Table 42F and Table 43F (see Appendix F) display the descriptive statistics and effect size statistics broken down by gender for the earlier administration of KCCT ($KCCT_1$) and the later administration of KCCT ($KCCT_2$). Table 4 below provides a representative example of the tables in Appendix F. The $KCCT_2$ file was used to identify students' gender based on the reasoning that older students are less likely to make errors when coding their gender than younger students. With the exception of Reading, the effect sizes for all content areas are consistently weak for $KCCT_1$ and $KCCT_2$. For example, the effect size for 2000 5th grade Math is $d = -.07$, and the effect size for 2003 8th grade Math is $d = -.08$. Moreover, the effect size is $d = -.04$ for both 2000 8th grade Math and 2003 11th grade Math. Reading was the only content area for which there was a meaningful difference in effect sizes across years. For instance, the effect size for 2000 4th grade Reading is $d = -.27$, but for 2003 7th grade Reading the effect size is $d = -.43$. The effect size for 2000 7th grade Reading is $d = -.37$, and for 2003

10th grade Reading the effect size is $d = -.43$. This demonstrates that females tend to score higher than males on the Reading portions of KCCT. Moreover, the difference is greater at 7th grade than at 4th grade, and at 10th grade than at 7th grade, although the difference between elementary school and middle school is greater than the difference between middle school and high school. All in all, with the exception of Reading, gender differences appear to have a weak and consistent impact on KCCT scores over time.

Table 4. $KCCT_1$ Descriptive Statistics by Gender ($KCCT_1 \rightarrow KCCT_2$)

Data File:	Sub-Group:	Reading				Science				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
1999 7th	Male					503.96	33.72	15,244	.04				
	Female					502.75	30.51	16,247					
2000 4th	Male	540.97	40.47	19,521	-.27	541.59	40.00	19,521	.01				
	Female	551.54	39.22	19,839		541.38	34.96	19,839					
2000 5th	Male									553.16	49.23	19,124	-.07
	Female									556.55	45.52	19,561	
2000 7th	Male	507.38	36.57	16,777	-.37								
	Female	520.89	35.53	17,823									
2000 8th	Male									533.97	44.46	15,802	-.04
	Female									535.54	39.68	16,689	
2001 8th	Male												
	Female												

Data File:	Sub-Group:	Social Studies				Arts & Humanities				Practical Living/ Vocational			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
1999 7th	Male												
	Female												
2000 4th	Male												
	Female												
2000 5th	Male	534.29	41.32	19,124	-.14	500.65	67.08	19,124	-.25	496.46	67.25	19,124	-.22
	Female	539.87	39.85	19,561		517.98	70.84	19,561		511.78	70.23	19,561	
2000 7th	Male												
	Female												
2000 8th	Male	512.15	46.53	15,802	-.18	509.75	62.82	15,802	-.33				
	Female	520.22	44.96	16,689		530.32	64.15	16,689					
2001 8th	Male									500.98	60.17	17,483	-.28
	Female									517.73	60.48	18,397	

Note. Table 4 is replicated as Table 42F in Appendix F.

To further explore whether KCCT demonstrates greater gender differences over time, a series of regression analyses were conducted. In the first step, students' performance on the earlier administration of the content area (i.e., $KCCT_1$) was used to predict their performance on the later administration of the content area (i.e., $KCCT_2$). Then, in the second step, gender was entered. This process was repeated for each of the six content areas. If KCCT is exhibiting greater gender differences over time, then gender will have a significant regression weight and there will be a meaningful increase in the prediction of $KCCT_2$ scores. The regression tables for gender are presented in Appendix G. Gender is coded such that positive regression weights indicate that female students have higher $KCCT_2$ scores even when controlling for $KCCT_1$ scores.

Table 44G in Appendix G presents the regression equations for the elementary KCCT scores predicting the middle school KCCT scores. The small regression weights for gender ($\beta = .01$ to $\beta = .13$) and the little or no increase in the R^2s (.00 to .02) indicate that gender does little to improve the prediction of students' $KCCT_2$ scores over and above their $KCCT_1$ scores. Not surprisingly, however, the largest regression weight for gender ($\beta = .13$) and the largest increase in R^2 (.02) was for Reading. This indicates that the magnitude of the gender difference in 4th grade Reading scores increases slightly in 7th grade Reading scores, such that females outscore males on the 7th grade KCCT Reading test even more so than they did on the 4th grade KCCT Reading test. Table 45G in Appendix G presents the regression equation for the middle school KCCT scores predicting high school KCCT scores. These results indicate that gender differences are even more stable when going from middle school to high school than when going from elementary school to middle school. The regression weights range from $\beta = -.03$ to $\beta = .09$, and the R^2 increases are nearly non-existent. Collectively, these results indicate that gender offers little explanatory power over and above prior KCCT performance (with the possible exception of 7th grade Reading), which thereby suggests that gender differences in KCCT scores are reasonably stable over time.

Socioeconomic Status. Students' SES was identified based on the description in the $KCCT_1$ file. The earlier KCCT file was used to identify students' SES because it is likely that older students may have a greater stigma associated with receiving free or reduced lunches, and therefore might be more likely to misrepresent their socioeconomic status. A comparison of students' lunch status in $KCCT_1$ and $KCCT_2$ supports this line of reasoning. The percentage of students identifying themselves as receiving free or reduced lunches in the $KCCT_1$ file was always larger (particularly when the $KCCT_1$ file was representing 4th or 5th grade) than the percentage of students identifying themselves as receiving free or reduced lunches in the $KCCT_2$ file. On average, the mean difference in the percentages was $M = 7.88$ ($SD = 4.88$). For this reason, $KCCT_1$ was used to determine SES.

Table 46H (Appendix H) displays the $KCCT_1$ descriptive statistic broken down by SES and Table 47H displays those statistics for $KCCT_2$. The magnitudes of the effect sizes are very similar for both tables. There is a medium to strong effect, demonstrating that students with lower SES have lower KCCT scores than students with higher SES.

The range in effect sizes for elementary school to middle school are similar to the range in effect sizes for middle school to high school. For example, in 2000 4th grade Reading the effect size is $d = -.60$, and in 2003 7th grade Reading the effect size is $d = -.64$. For 2000 7th grade Reading the effect size is $d = -.63$, and for 2003 10th grade Reading the effect size is $d = -.68$. Because SES has a similar impact on students' KCCT scores from elementary to middle school and from middle school to high school, this suggests that SES differences in KCCT are relatively consistent over time.

To further explore whether KCCT demonstrates consistent SES differences over time, a series of regression analyses were conducted. In the first step, students' $KCCT_1$ scores were used to predict their $KCCT_2$ scores. Then, in the second step SES was entered. This was done for each of the six content areas. If KCCT is exhibiting greater SES differences over time, then SES will have a significant regression weight and there will be a meaningful increase in the prediction of $KCCT_2$ scores. SES is coded such that positive regression weights indicate that students with higher SES tend to have higher $KCCT_2$ scores than would be expected from $KCCT_1$ scores alone. The regression tables for SES are presented in Appendix I. Table 48I presents the regression equations for the elementary KCCT scores predicting the middle school KCCT scores. The regression weights for SES are small, but noticeable across each of the six content areas ($\beta = .13$ to $\beta = .17$), and the increases in R^2s are 3% or less. Table 49I presents the regression equations for the middle school scores predicting the corresponding high school scores. In this table, the regression weights for SES are smaller ($\beta = .08$ to $\beta = .13$), and the increases in R^2 are all 1%. Overall, these results indicate that SES differences in KCCT scores remain reasonably stable across time. However, there is a small increase in the magnitude of the effect when going from elementary school to middle school, such that students with higher SES score even higher on their middle school KCCT tests than would be expected based on SES differences in elementary KCCT scores.

Race. Table 50J displays the $KCCT_1$ descriptive statistics broken down by race, and Table 51J displays the descriptive statistics for $KCCT_2$ (see Appendix J). Because older students are thought to make fewer mistakes when coding their racial status than younger students, students were identified as White, African American or Hispanic based on the description in the $KCCT_2$ file. The effect size statistic in the box aligned with "African American" reflects the magnitude of the effect between African Americans and Whites, and the effect size statistic in the box aligned with "Hispanic" reflects the magnitude of the effect between Hispanics and Whites.

First, for African Americans and Whites, across tables and across content areas there is a medium to strong effect demonstrating that White students consistently score higher than African American students on all KCCT content areas, and in all grades and years. The magnitude of the effect is slightly stronger in middle school than in elementary school for all content areas except Reading (which remains at $d = .55$). For example, the effect size for 2000 5th grade Math is $d = .62$, and in 2003 8th grade Math the effect size is $d = .67$. In contrast, the magnitude of the effect is slightly less in high school than in middle school for all content areas. For example, for 2000 7th grade Reading the effect size is $d = .54$, and in 2003 10th grade Reading the magnitude of the effect is $d =$

.48. There is a consistent, albeit small, pattern in effect sizes such that race differences (African American/White) in KCCT scores tend to be larger in the middle school grades and smaller in the high school grades.

Table 5 (see Appendix K) displays the results from the regression analyses for African Americans/Whites at the elementary to middle school grades, and Table 53K displays those results for the middle school to high school grades (see Appendix K). Race is coded such that negative regression weights indicate that the race differences between African Americans and Whites on $KCCT_2$ is smaller than would be expected based on $KCCT_1$. In Table 52K, the regression weights are reasonably small (β = -.07 to β = -.11), and the increases in the R^2s are 1% or less. This indicates that African Americans are scoring higher on $KCCT_2$ relative to their performance on $KCCT_1$, although the improvement between elementary school and middle school is relatively small. For Table 53K, the regression weights are small (β = -.02 to β = -.06), and the increases in the R^2s are negligible. This indicates that the performance gap between African Americans and Whites remains relatively stable from middle school to high school. Collectively, these results provide evidence that including race (African American/White) in the regression model adds a small amount of explanatory power over and above previous KCCT performance at the elementary to middle school level, but adds very little explanatory power at the middle school to high school level.

Table 5. KCCT Regression Results Showing Race Effects (African American/White) at the Elementary to Middle School Level

		Reading			Science			Math			Social Studies			A&H			PLVS	
Predictors:	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2003 $KCCT_2$ 7th Grade																		
2000 $KCCT_1$ 4th																		
Step 1: Read	.64	.41																
Step 2: AA/W	-.07	.41	.00															
2000 $KCCT_1$ 4th																		
Step 1: Science				.62	.39													
Step 2: AA/W				-.10	.40	.01												
2003 $KCCT_2$ 8th Grade																		
2000 $KCCT_1$ 5th																		
Step 1: Math							.68	.46										
Step 2: AA/W							-.09	.46	.01									
2000 $KCCT_1$ 5th																		
Step 1: Social										.65	.43							
Step 2: AA/W										-.09	.44	.01						
2000 $KCCT_1$ 5th																		
Step 1: A&H													.52	.27				
Step 2: AA/W													-.08	.27	.01			
2000 $KCCT_1$ 5th																		
Step 1: PLVS																.48	.23	
Step 2: AA/W																-.11	.24	.01

Note. Table 5 is replicated as Table 52K in Appendix K.

Second, for Hispanics and Whites, the descriptive statistics in Table 51J show that White students score higher than Hispanic students on all KCCT content areas, and in all grades and years. In the elementary grades there is a medium effect size difference between Whites and Hispanics ($d = .48$ to $d = .59$). The magnitude of that difference is smaller in middle school. For example, the effect size for 2000 5th grade Social Studies is $d = .59$, and in 2003 8th grade Social Studies the effect size is $d = .26$. This trend continues for middle school to high school. For instance, the effect size for 2000 8th grade Social Studies is $d = .46$, and the effect size for 2003 11th grade Social Studies is $d = .10$. In fact, for the high school grades the magnitudes of the effect sizes range from $d = .06$ to $d = .20$ across content areas. Consequently, there are medium effect size differences in elementary school, but weak effect size differences in high school.

Table 54L displays the results from the regression analyses for Hispanics/Whites at the elementary to middle school grades, and Table 55L displays those results for the middle school to high school grades (see Appendix L). Race (Hispanic/White) is coded such that positive regression weights indicate that White students tend to have higher $KCCT_2$ scores than would be expected from race differences in $KCCT_1$ scores alone. For all of the regression equations in Table 54L, the regression weights are negligible, and there are no increases in the R^2s. Likewise, for Table 55L, the regression weights are negligible and the increases in R^2s are non-existent. Including Hispanic/White in the regression model adds little explanatory power over and above previous KCCT performance. This provides evidence that Hispanic/White differences in KCCT scores do not become larger over time.

STABILITY OF STUDENTS' CTBS SCORES

Description of CTBS Data

The CTBS data were provided by KDE. The scale score is the basic score for CTBS. Scale scores are units of a single, equal-interval scale and are expressed in numbers that range from 0 to 999 (CTB/McGraw-Hill, 1997). CTBS data consisted of data files for Kentucky public school students in Grades 3, 6, and 9 for 2001 and 2004. Both background information and scale score information were contained within the same data file; consequently, no linking was necessary for the CTBS data files. The descriptive statistics for 2001 and 2004 CTBS data are presented below in Tables 6 and 7, respectively (see also Appendix M).

Table 6. CTBS Descriptive Statistics by Grade and Content Area for 2001 — Total Sample

		Reading	Language	Math	Total Score
Grade 3	M	637.53	633.61	615.13	628.78
	SD	42.98	39.49	43.07	37.49
	N	49,678	49,671	49,664	49,650
Grade 6	M	662.76	659.73	662.26	661.62
	SD	41.41	43.18	49.77	40.01
	N	48,598	48,595	48,573	48,549
Grade 9	M	683.60	676.51	696.62	685.64
	SD	39.79	46.89	52.56	41.20
	N	49,988	49,980	49,953	49,890

Note. Table 6 is replicated as Table 56M in Appendix M.

Table 7. CTBS Descriptive Statistics by Grade and Content Area for 2004 – Total Sample

		Reading	Language	Math	Total Score
Grade 3	M	644.22	640.50	624.65	636.47
	SD	42.59	39.32	43.75	37.15
	N	47,774	47,772	47,765	47,759
Grade 6	M	665.12	661.70	667.05	664.65
	SD	40.88	43.39	49.35	39.66
	N	50,006	50,005	49,974	49,969
Grade 9	M	686.58	679.03	701.04	688.94
	SD	39.27	46.84	53.93	41.41
	N	51,508	51,505	51,484	51,439

Note. Table 7 is replicated as Table 57M in Appendix M.

Merging

Before comparing prior CTBS scores to later CTBS scores, it was first necessary to merge the 3rd grade 2001 data with the 6th grade 2004 data, and the 6th grade 2001 data with the 9th grade 2004 data. The same convention described above for KCCT data was also used for merging CTBS data. Table 58N in Appendix N displays the two merge combinations along with the number and percentage of students whose data successfully merged in each merge cycle. Approximately, 77% of the original cases were retained in the final sample. This is very similar to the percent of cases contained in the final merges for nonconsecutive KCCT grades (e.g., 1999 4th grade and 2002 7th grade). As mentioned earlier, the number of successful merges may have been affected by student transience, and by inconsistent reporting of students' names across the years.

An additional analysis was conducted to verify that students retained in the final data set did not differ meaningfully on CTBS scores from students whose data failed to merge. Tables 8 and 9 below present the descriptive statistics for matched (i.e., merged) students compared with unmatched (i.e., unmerged) students. As found above with KCCT scores, the CTBS scores for matched data were somewhat higher on all content areas than CTBS scores for unmatched data. However, the difference between matched and unmatched scale score means was always less than one half of a standard deviation. These findings are consistent with research of this type (e.g., Bacci et al., 2003; Sinclair & Thacker, 2004; Thacker & Hoffman, 1999), and while the differences are consistent they are not so large as to warrant concern that the unmatched sample differs dramatically from the matched sample.

Table 8. Descriptive Statistics for 2001 CTBS Grade 3 and 2004 CTBS Grade 6

2001 Grade 3	Matched			Unmatched			Mean Difference
	Mean	S. D.	N	Mean	S. D.	N	
Reading	640.72	41.92	38,367	626.70	44.74	11,319	14.02
Language	636.71	38.68	38,364	623.11	40.40	11,315	13.60
Math	618.56	41.85	38,356	603.47	45.05	11,316	15.09
Total	632.01	36.32	38,349	617.79	39.27	11,309	14.22
2004 Grade 6							
Reading	666.73	40.51	38,339	659.83	41.62	11,671	6.90
Language	663.38	43.13	38,339	656.21	43.80	11,670	7.17
Math	668.95	49.04	38,319	660.79	49.82	11,659	8.16
Total	666.37	39.36	38,318	659.00	40.13	11,655	7.37

Note. Table 8 is replicated as Table 59O in Appendix O.

Table 9. Descriptive Statistics for 2001 CTBS Grade 6 and 2004 CTBS Grade 9

2001 Grade 6	Matched			Unmatched			Mean Difference
	Mean	S. D.	N	Mean	S. D.	N	
Reading	666.34	40.61	36,864	651.51	41.88	11,745	14.83
Language	663.71	42.59	36,861	647.16	42.71	11,745	16.55
Math	666.95	48.55	36,851	647.49	50.71	11,733	19.16
Total	665.69	39.17	36,841	648.79	39.99	11,719	16.9
2004 Grade 9							
Reading	689.80	38.10	36,780	678.54	40.97	14,733	11.26
Language	682.90	45.95	36,780	669.38	47.66	14,730	13.52
Math	705.84	53.26	36,771	689.07	53.72	14,718	16.77
Total	692.87	40.51	36,748	679.10	41.99	14,696	13.77

Note. Table 9 is replicated as Table 60O in Appendix O.

Correlations among CTBS Measures over Time

The second purpose of this investigation is to provide further evidence for the validity of CATS by establishing that across grades and years, students' CTBS scores on the same content areas correlate positively. The expectation is for the highest correlations to be between the same content areas across grades/years. Then, because of similarities in test-taking circumstances or other method effects, the next highest correlations are expected to be between different content areas within the same grade/year. Finally, the lowest correlations are expected to be between different content areas in different grades/years. Table 10 below presents the correlations between students' CTBS scores as third graders in 2001 and their CTBS scores as sixth graders in 2004. Table 10 presents the correlations between students' CTBS scores as sixth graders in 2001 and their CTBS scores as ninth graders in 2004. These tables differentiate between the following correlations:

- Correlations between the same content area across different grades/years (These correlations are in bold and underlined).
- Different content areas within the same grade/year (These correlations are in italics).
- Different content areas within different grades/years (These correlations are in bold, but not underlined).

Table 10. Correlations Between CTBS 2001 3rd Graders and CTBS 2004 6th Graders

Variables	1	2	3	4	5	6
Grade 3						
1. Reading	1.00					
2. Language	*.73*	1.00				
3. Math	*.66*	*.67*	1.00			
Grade 6						
4. Reading	**.64**	**.62**	**.58**	1.00		
5. Language	**.61**	**.62**	**.57**	*.74*	1.00	
6. Math	**.57**	**.59**	**.66**	*.67*	*.66*	1.00

Note. Table 10 is replicated as Table 61P in Appendix P.

Table 11. Correlations Between CTBS 2001 6th Graders and CTBS 2004 9th Graders

Variables	1	2	3	4	5	6
Grade 6						
1. Reading	1.00					
2. Language	*.74*	1.00				
3. Math	*.68*	*.66*	1.00			
Grade 9						
4. Reading	**.68**	**.66**	**.61**	1.00		
5. Language	**.62**	**.63**	**.59**	*.73*	1.00	
6. Math	**.62**	**.60**	**.73**	*.67*	*.64*	1.00

Note. Table 11 is replicated as Table 62P in Appendix P.

Contrary to expectations, the correlations between the same content areas across grades/years did not consistently emerge as the strongest. Rather, the correlations between Reading and Language within the same grade/year (e.g., 3rd grade Reading and 3rd grade Language) were similar, and in several cases stronger, than the correlations between same content areas over different grades. The within grade correlations ranged from $r = .73$ to $r = .74$. The correlation between 6th grade Math and 9th grade Math was the only subject-to-subject correlation of similar magnitude ($r = .73$). The remaining subject-to-subject correlations ranged from $r = .62$ to $r = .68$. The emergence of the math-to-math correlation as the strongest of the same subject correlations is consistent with prior research (Sinclair & Thacker, 2004). Finally, as expected, the correlations between different subjects over different grades were the weakest in magnitude.

Gender, Socioeconomic and Racial Differences in CTBS Scores

Analyses were conducted to compare students' performance on the earlier administration of the CTBS tests (i.e., CTBS$_1$) with their performance on the later administration of CTBS (i.e., CTBS$_2$). In particular, we were interested in examining whether gender differences, socioeconomic (SES) differences, and racial differences on CTBS scores remain stable over time. Prior research has established that these demographic groups tend to vary in their average test performance (e.g., Bacci, et al., 2003; Sinclair & Thacker, 2004). The important validity question for judging Kentucky's CTBS scores is whether any differences between males and females, socioeconomic groups, or racial groups become larger over time. Consistent with NAEP's general findings of stability in demographic gaps in scores, we also expect demographic differences in CTBS scores to remain relatively stable over time.

Gender. Table 12 below displays the descriptive statistics and effect size statistics broken down by gender for CTBS$_1$ (2001 Grade 3 and 2001 Grade 6) and CTBS$_2$ (2004 Grade 6 and 2004 Grade 9). The CTBS$_2$ files were used to identify students' gender based on the reasoning that older students are less likely to make errors when coding gender than younger students. The effect sizes for Math across grades/years are negligible, thereby indicating that males and females score similarly on the Math portions of CTBS. For Reading and Language, there are weak to moderate effect size differences between males and females, such that females tend to score higher on these content areas.

Table 12. CTBS Descriptive Statistics by Gender

Year/ Grade:	Sub-Group:	Reading				Language				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
2001 3rd	Male	637.77	42.85	19,084		632.01	38.11	19,081		617.82	43.19	19,076	
	Female	643.62	40.72	18,955	-.14	641.38	38.66	18,955	-.24	619.26	40.40	18,952	-.03
2001 6th	Male	662.58	41.31	19,066		657.81	43.33	19,066		667.63	51.81	19,054	
	Female	670.89	39.27	18,946	-.21	668.94	42.20	18,946	-.26	670.26	46.04	18,938	-.05
2004 6th	Male	662.76	41.53	18,095		658.63	42.99	18,093		665.43	51.16	18,088	
	Female	669.88	39.27	18,687	-.18	668.70	41.57	18,686	-.24	668.47	45.74	18,681	-.06
2004 9th	Male	682.89	38.28	18,039		674.39	46.59	18,039		707.10	55.04	18,034	
	Female	696.52	36.69	18,656	-.36	691.18	43.77	18,656	-.37	704.68	51.42	18,653	.05

Note. Table 12 is replicated as Table 63Q in Appendix Q.

Next, a series of regression analyses were conducted to determine if gender differences in CTBS scores remain stable over time. In the first step, students' performance on the earlier administration of CTBS (i.e., $CTBS_1$) was used to predict their performance on the later administration of CTBS (i.e., $CTBS_2$). Then, in the second step gender was entered. This process was repeated for each of the three content areas (i.e., Reading, Language, and Math). If CTBS is exhibiting greater gender differences over time, then gender will have a significant regression weight and there will be a meaningful increase in the prediction of $CTBS_2$ scores. Table 64R is the regression table for gender (See Appendix R). Gender is coded such that positive regression weights indicate that females score higher than males on $CTBS_2$ over and above what would be expected based on $CTBS_1$ scores. The relatively small regression weights for gender ($\beta = -.05$ to $\beta = .12$) and the lack of increase in R^2s (.00 to .01) indicate that gender does little to improve the prediction of students' $CTBS_2$ scores over and above their $CTBS_1$ scores. The largest regression weight for gender ($\beta = .12$) was for 9th grade Reading. Collectively, these results indicate that gender offers little explanatory power over and above prior KCCT performance, with the possible exception of 9th grade Reading. These findings indicate that gender differences in KCCT scores are reasonably stable over time.

Socioeconomic Status. Students' SES was identified based on the description in the $CTBS_1$ file. The earlier CTBS file was used to identify students' SES because it is likely that older students may have a greater stigma associated with receiving free or reduced lunches, and therefore might be more likely to misrepresent their socioeconomic status. Table 65S displays the $CTBS_1$ descriptive statistic broken down by SES (see Appendix S). There is a medium to strong effect, demonstrating that students with lower SES have lower CTBS scores. Because SES has a similar impact on students' CTBS scores across grades/years, this suggests that SES differences in CTBS scores are relatively consistent over time.

To further explore whether CTBS demonstrates consistent SES differences over time, a series of regression analyses were conducted. In the first step, students' $CTBS_1$ scores were used to predict their $CTBS_2$ scores. Then, in the second step SES was entered. This was done for Reading, Language and Math. If CTBS is exhibiting greater SES differences over time, then SES will have a significant regression weight and there will be a meaningful increase in the prediction of $CTBS_2$ scores. SES is coded such that positive regression weights indicate that students with higher SES tend to have higher $CTBS_2$ scores than would be expected from $CTBS_1$ scores alone. Table 66T presents the regression table for SES (see Appendix T). The regression weights for SES are small, but noticeable across each of the three content areas ($\beta = .10$ to $\beta = .13$), and the increases in R^2s are all 1%. Overall, these results indicate that SES differences in CTBS scores remain somewhat stable over time. However, there is a subtle increase in the magnitude of the effect across grades/years such that students with higher SES score even higher on $CTBS_2$ than would be expected based on $CTBS_1$ scores.

Race. Table 67U displays the CTBS descriptive statistics broken down by race (see Appendix U). Because older students are thought to make fewer mistakes regarding their racial status than younger students, students were identified as White, African

American or Hispanic based on the description in the $CTBS_2$ file. The effect size statistic in the box aligned with "African American" reflects the magnitude of the effect between African Americans and Whites, and the effect size statistic in the box aligned with "Hispanic" reflects the magnitude of the effect between Hispanics and Whites.

First, for African Americans and Whites, across tables and across content areas there is a medium to strong effect demonstrating that White students consistently score higher than African American students on all CTBS content areas, and in all grades and years ($d = .58$ to $d = .76$). Next, Table 68V displays the results from the regression analyses for African Americans/Whites (see Appendix V). Race is coded such that negative regression weights indicate that the race differences between African Americans and Whites on $CTBS_2$ is smaller than would be expected based on $CTBS_1$. For all of the regression equations in Table 68V, the regression weights are relatively small and negative ($\beta = -.05$ to $\beta = -.10$), and the increases in the R^2s are 1% or less. In other words, the performance gap between African Americans and Whites on $CTBS_2$ is smaller than the performance gap between African Americans and Whites on $CTBS_1$, but only slightly. Overall, these results suggest that including race (African American/White) in the regression model adds little explanatory power over and above previous CTBS performance. This suggests that African American/White differences on CTBS remain reasonably stable over time, although the performance gap may be decreasing slightly.

Second, for Hispanics and Whites, Table 67U (See Appendix U) shows that White students score higher than Hispanic students on all KCCT content areas, and in all grades and years. Overall, there is a small to medium effect size difference between Whites and Hispanics ($d = .18$ to $d = .37$). Next, Table 69W displays the results from the regression analyses for Hispanics/Whites (see Appendix W). For all of the regression equations in Table 69W, the regression weights are negligible, and there are no increases in the R^2s. These results provide evidence that race (Hispanic/White) becomes no better of a predictor over time than students' prior KCCT performance. That is, including Hispanic/White in the regression model adds little explanatory power over and above previous CTBS performance. This provides evidence that Hispanic/White differences in CTBS scores remain stable over time.

COMPARISON OF KCCT AND CTBS

Comparison of Correlational Analyses

For both KCCT and CTBS the highest correlations tended to be between different content areas within the same grade. The magnitude of these within grade correlations were similar for KCCT ($r = .71$ to $r = .83$) and CTBS ($r = .74$ to $r = .73$), with KCCT intercorrelations being slightly higher. Given that that there were 17 different sets of correlations conducted with the available KCCT data (i.e., see Tables 24 - 40) compared to two sets of correlations conducted with the available CTBS data (i.e., see Tables 61 and 62), it is not surprising that we found a slightly higher range of intercorrelations for KCCT. The next highest correlations for both KCCT and CTBS were the same subject correlations across grades/years. Table 13 below displays the same subject correlations

for Reading and Math, the two content areas that KCCT[4] and CTBS have in common. These correlations are very similar for KCCT and CTBS. In fact, the correlation for elementary/middle school Reading are the same for both KCCT and CTBS. In all other cases the correlations only differ by .01 to .02. Also, it is interesting to note that the subject-to-subject correlations for Math were higher than the subject-to-subject correlations for Reading for both KCCT and CTBS. This finding is also consistent with prior research which has found that Math-to-Math correlations tend to be higher than other same subject correlations (e.g., Bacci, Koger, Hoffman, & Thacker, 2003; Sinclair & Thacker, 2004). Finally, for both KCCT and CTBS the smallest correlations tended to be between different content areas over different grades/years.

Table 13. Comparison of Same Subject Correlations for KCCT and CTBS

	Elementary School to Middle School	
	KCCT	CTBS
Math—Math	.68	.66
Reading—Reading	.64	.64
	Middle School to High School	
	KCCT	CTBS
Math—Math	.73	.74
Reading—Reading	.69	.68

Note. Table 13 is replicated as Table 70X in Appendix X.

Comparison of Demographic Analyses

Gender. The gender differences for KCCT and CTBS are similar for Math and Reading. For Math, there are no meaningful gender differences in scores on either KCCT (d = -.04 to d = -.08) or CTBS (d = -.03 to d = -.05). For Reading, there is a weak to moderate gender difference in scores such that females tend to score higher than males on the reading portion of KCCT (d = -.27 to -.43) and on the reading portion of CTBS (d = -14 to d = -.36). Results from the regression analyses are also similar for KCCT and CTBS. The regression weight for gender has a small, but noticeable, impact on 7th Grade KCCT Reading (β = .13) and on 9th Grade CTBS Reading (β = .12) such that females score higher than would be predicted from scores on the prior tests. For all other grades and content areas, the regression weight for gender is negligible for both KCCT and CTBS, indicating that gender differences remain stable over time. In sum, KCCT and

---

[4] The elementary/middle school coefficients for Reading were selected from Table 29D ("KCCT Correlations Between 2000 Grade 4 and 2003 Grade 7"), and the coefficients for Math were selected from Table 30D ("KCCT Correlations Between 2000 Grade 5 and 2003 Grade 8"). The middle/high school coefficients for Reading were selected from Table 31D ("KCCT Correlations Between 2000 Grade 7 and 2003 Grade 10"), and the coefficients for Math were selected from Table 32D ("KCCT Correlations Between 2000 Grade 8 and 2003 Grade 11").

CTBS are very similar in regards to the magnitude of gender differences and the stability of gender differences over time.

Socioeconomic Status. SES differences are also very similar for KCCT and CTBS. For KCCT Math ($d = -.61$ to $d = -.69$) and CTBS Math ($d = -.57$ to $d = -.67$), there is a moderate to strong effect such that students with higher SES tend to score higher than students with lower SES. This same pattern emerges for Reading. Students with higher SES score higher on both KCCT Reading ($d = -.60$ to $-.68$) and CTBS Reading ($d = -.58$ to $-.60$). Results from the regression analyses are also very similar for KCCT and CTBS. For Math, the regression weights for KCCT ($\beta = .08$ and $\beta = .13$) and the regression weights for CTBS ($\beta = .13$ and $\beta = .12$) are both small, but noticeable. Similarly, the regression weights for KCCT Reading ($\beta = .13$ and $\beta = .12$) and the regression weights for CTBS Reading ($\beta = .10$ and $\beta = .12$) are also both small, but noticeable. These regression results indicate that students with higher SES score slightly higher on $KCCT_2$ and $CTBS_2$ than would be expected based on $KCCT_1$ and $CTBS_1$. In sum, KCCT and CTBS are very similar in regards to the magnitude of SES differences and the stability of those SES differences over time.

Race. White students' scores were first compared with African American students' scores. The magnitudes of the differences in scores were similar for KCCT and CTBS, although there tended to be a slightly larger performance gap on CTBS than on KCCT for both Reading and Math. For example, for CTBS Math there was a moderate to strong effect such that White students tended to score higher than African American students ($d = .62$ to $.76$). This same pattern emerged for KCCT Math, but the magnitude of the difference was slightly less ($d = .58$ to $.67$). Similarly, for CTBS Reading, there was a moderate to strong effect such that White students tended to score higher than African American students ($d = .59$ to $.74$). This same pattern emerged for KCCT Reading, although the magnitude of the effect was slightly less ($d = .48$ to $.55$). Results from the regression analyses are similar for KCCT and CTBS. At the elementary to middle school level, both KCCT and CTBS had small, but noticeable, negative regression weights for Reading and Math ($\beta = -.07$ to $\beta = -.10$), indicating that African Americans' scored slightly higher on the middle school tests relative to their performance on the elementary tests. However, at the middle school to high school level, for both KCCT and CTBS, the regression weights for Reading and Math were negligible. This indicates that the performance differences between African Americans and Whites remained stable from middle school to high school. Despite subtle differences between KCCT and CTBS, the overall pattern of results was very similar for both tests.

Finally, White students' scores were compared with Hispanic students' scores. Interestingly, there was a wider range of effect sizes for KCCT Math ($d = .17$ to $d = .57$) and KCCT Reading ($d = .13$ to $d = .64$) than there was for CTBS Math ($d = .19$ to $d = .37$) and CTBS Reading ($d = .21$ to $d = .30$). The larger effect sizes for KCCT all came from the 2000 data set. The smaller effect sizes, which are more closely aligned with the CTBS effect sizes, all came from the 2003 data set. Consequently, there may have been some idiosyncratic characteristic(s) of the 2000 data set that could have potentially resulted in the larger effect sizes for 2000. The large standard deviations for 2000 ($SD =$

71.52 to $SD = 84.74$) compared to the smaller standard deviations for 2003 ($SD = 35.23$ to $SD = 51.59$) are consistent with this line of reasoning. Despite the variability in the ranges of effect sizes for KCCT and CTBS, the direction of the effect is the same for both tests such that White students tended to score higher than Hispanic students. In terms of the regression analyses, the regression coefficients for KCCT and CTBS were negligible for both Reading and Math, thereby indicating that racial differences (Hispanic/White) were stable over time for both KCCT and CTBS.

DISCUSSION

The purpose of this investigation was to extend prior research conducted on the validity of Kentucky's Commonwealth Accountability Testing System (CATS), and thereby provide additional evidence for its validity. In order to accomplish this goal, two research questions were posed: (1) *How stable are KCCT scores over time?* And (2) *How stable are CTBS scores over time?* In particular, we expected that for each test, across grades and years, students' scores on the same content areas would correlate positively. We expected the highest correlations to be between the same content areas across grades. Then, because of similarities in test-taking circumstances or other method effects, the next highest correlations were expected to be between different content areas within the same grade. The lowest correlations were expected to be between different content areas in different grades. The results are partially consistent with these expectations. We also expected the stability of KCCT scores to be consistent with the stability of CTBS scores. That is, we expected KCCT scores and CTBS scores to both be stable over time. The results largely support this expectation.

The correlations between different subjects within the same grade tended to be the strongest for both KCCT and CTBS. This finding is consistent with prior research in which within grade correlations (thereby meaning correlations between different content areas) were as high, or higher, than same subject correlations (thereby meaning correlations between nonconsecutive grades) (Bacci et al., 2003, Sinclair & Thacker, 2004). When correlations between two purportedly distinct content areas (e.g., Reading and Math) are above .70, as occurred several times, this calls into question whether the two subject specific tests are really measuring different constructs. In other words, given the high correlation between these two tests, are they more or less interchangeable with one another? We speculate that the answer is probably, "no." That is, the two tests are likely measuring (i.e., "tapping into") knowledge in different content areas. The high correlations may be due to the existence of the "g factor" discussed by Sicoly (2002). This general cognitive factor cuts across content areas. The result is that high ability students score well on any test, regardless of the content area. Consequently, the g factor limits our ability to distinguish differences between subject specific tests.

The next highest correlations tended to come from the same subject correlations for Reading and Math. Moreover, for KCCT the correlations between different content areas for one grade difference are similar in magnitude to KCCT's same subject correlations. We believe that this can be considered to be an encouraging finding in the sense that it shows that students' scores are improving at different rates. Improvement at different rates suggests that just because one student starts in 4th grade at a low level and another at a high level, does not necessarily mean that their relative rank will remain the same over time. If the relative rank changes, such that students with lower scores are catching up to students with higher scores, then we might start to attribute some of these gains to positive characteristics of the school system.

While generalized statements were made about the relative strengths of the correlations, it is important to note that of the 19 correlation matrices included in this report, the smallest correlation was $r = .47$. This was a correlation between 5th grade Arts

& Humanities and 8th grade Practical Living/Vocational Studies. Given what we know about the poorer internal consistency of these two subjects and what we know about greater periods of time depressing correlations, it is not surprising that these two subjects had the smallest correlation. In fact, it is rather impressive that this correlation is as high as it is.

Finally, the demographic differences in test scores and the stability of those demographic differences were similar for both KCCT and CTBS. The only point of departure between KCCT and CTBS was for the magnitude of the effect size differences between Whites and Hispanics. The magnitude of the effect was larger for KCCT than for CTBS, but only for the 2000 KCCT data. Overall, these findings are consistent with the NAEP results released by the National Center for Education Statistics (2004), which indicate that demographic differences (gender, SES, and race) in Reading and Math have remained relatively stable since the early 1990s.

Conclusion

Overall, the results from this report provide strong validity evidence for CATS. It is clear from the data that students who perform well on KCCT and CTBS in one grade are likely to perform well on KCCT and CTBS in other grades. Moreover, in general, neither gender, race, nor socioeconomic status appear to influence KCCT scores or CTBS scores any more than would be expected from observed differences in prior KCCT and CTBS performance. Therefore, this report adds to the growing validity evidence for CATS.

REFERENCES

Bacci E. D., Koger, M. E., Hoffman, R. G., & Thacker, A. A. (2003). *Relationships among Kentucky's core content test, ACT scores, and students' self-reported high school grades for the classes of 2000 through 2002.* (HumRRO Draft Report FR-03-19). Louisville, KY: Human Resources Research Organization.

Campbell, D. T. & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56(2), 81-105.*

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum.

CTB/McGraw-Hill. (1997). Teacher's Guide to TerraNova. Monterey, CA.

Hoffman, R. G., (1998). *Relationships among Kentucky's open-response assessments, ACT scores, and students' self-reported high school grades.* (HumRRO Report FR-WATSD-98-27), Radcliff, KY: Human Resources Research Organization.

Okpala, C. O., Okpala, A. O., & Smith, F. E. (2001). Parental involvement, instructional expenditures, family socioeconomic attributes, and student achievement. *Journal of Educational Research, 95,* 110 – 115.

Sicoly, F. (2002). What do school-level scores from large-scale assessments really measure? *Educational Measurement: Issues and Practice, 21(4), 17-26.*

Sinclair, A. L., & Thacker, A. A. (2004) *Relationships Between Students' Scores on KCCT and CTBS* (HumRRO Draft Report FR-04-24), Louisville, KY: Human Resources Research Organization.

Thacker, A.A., & Hoffman, R.G. (1999). *Relationships between MCAS and SAT-9 for one district in Massachusetts* (HumRRO Report FR-WATSD-99-05). Alexandria, VA: Human Resources Research Organization.

United States Department of Education, National Center for Education Statistics (2004). *NAEP 2003 Reading and Mathematics Assessment.* Washington, DC: U.S. Department of Education.

Willingham, W.W., & Cole, N.S. (1997). *Gender and Fair Assessment*. Princeton, NJ: Educational Testing Service.

APPENDIX A

Table 1A. KCCT Descriptive Statistics by Grade and Content Area 1999--Total Sample

		RD	SC	MA	SS	AH	PL
4th Grade	Mean	540.82	534.45	--	--	--	--
	S. D.	47.33	44.34	--	--	--	--
	N	49,101	49,101	--	--	--	--
5th Grade	Mean	--	--	548.46	533.33	499.57	498.68
	S. D.	--	--	49.14	42.70	71.06	70.92
	N	--	--	46,930	46,930	46,930	46,930
7th Grade	Mean	507.48	494.55	--	--	--	--
	S. D.	42.30	39.18	--	--	--	--
	N	48,457	48,457	--	--	--	--
8th Grade	Mean	--	--	519.90	500.02	497.62	497.78
	S. D.	--	--	51.53	50.70	67.87	68.66
	N	--	--	49,413	49,413	49,413	49,413
10th Grade	Mean	494.05	--	--	--	--	497.68
	S. D.	59.96	--	--	--	--	68.67
	N	46184	--	--	--	--	46184
11th Grade	Mean	--	531.99	519.41	534.30	496.53	--
	S. D.	--	51.32	60.51	61.99	68.09	--
	N	--	41,087	41,087	41,087	41,087	--

Table 2A. KCCT Descriptive Statistics by Grade and Content Area 2000 -- Total Sample

		RD	SC	MA	SS	AH	PL
4th Grade	Mean	542.46	538.14	--	--	--	--
	S. D.	44.16	41.43	--	--	--	--
	N	49,931	49,931	--	--	--	--
5th Grade	Mean	--	--	550.83	533.68	504.02	499.13
	S. D.	--	--	50.22	43.08	70.71	70.46
	N	--	--	48,654	48,654	48,654	48,654
7th Grade	Mean	507.25	495.51	--	--	--	--
	S. D.	41.18	39.46	--	--	--	--
	N	48,523	48,523	--	--	--	--
8th Grade	Mean	--	--	523.65	504.48	505.33	497.87
	S. D.	--	--	50.32	52.10	69.64	66.13
	N	--	--	47,943	47,943	47,943	47,943
10th Grade	Mean	500.21	--	--	--	--	499.70
	S. D.	60.91	--	--	--	--	67.37
	N	44,877	--	--	--	--	44,877
11th Grade	Mean	--	533.24	520.67	535.43	501.78	--
	S. D.	--	52.29	60.72	63.51	69.77	--
	N	--	40,980	40,980	40,980	40,980	--

Table 3A. KCCT Descriptive Statistics by Grade and Content Area 2001 -- Total Sample

		RD	SC	MA	SS	AH	PL
4th Grade	Mean	543.18	541.64	--	--	--	--
	S. D.	44.70	42.79	--	--	--	--
	N	50,422	50,422	--	--	--	--
5th Grade	Mean	--	--	555.35	534.81	508.39	503.07
	S. D.	--	--	50.53	43.99	64.90	72.48
	N	--	--	49,744	49,744	49,744	49,744
7th Grade	Mean	509.30	497.03	--	--	--	--
	S. D.	40.211	39.19	--	--	--	--
	N	47,966	47,966	--	--	--	--
8th Grade	Mean	--	--	526.49	508.19	507.82	499.36
	S. D.	--	--	50.02	53.95	69.29	64.85
	N	--	--	48,105	48,105	48,105	48,105
10th Grade	Mean	501.93	--	--	--	--	499.10
	S. D.	62.23	--	--	--	--	67.02
	N	45,986	--	--	--	--	45,986
11th Grade	Mean	--	535.03	525.33	537.31	510.69	--
	S. D.	--	51.50	59.12	64.39	71.39	--
	N	--	39,832	39,832	39,832	39,832	--

Table 4A. KCCT Descriptive Statistics by Grade and Content Area 2002 -- Total Sample

		RD	SC	MA	SS	AH	PL
4th Grade	Mean	544.44	542.19	--	--	--	--
	S. D.	44.71	42.24	--	--	--	--
	N	49,757	49,757	--	--	--	--
5th Grade	Mean	--	--	557.51	537.21	517.19	505.78
	S. D.	--	--	50.59	43.80	70.39	68.32
	N	--	--	50,488	50,488	50,488	50,488
7th Grade	Mean	510.46	499.61	--	--	--	--
	S. D.	40.04	39.57	--	--	--	--
	N	49,585	49,585	--	--	--	--
8th Grade	Mean	--	--	525.90	509.20	509.00	499.63
	S. D.	--	--	49.58	53.018	69.83	63.90
	N	--	--	47,923	47,923	47,923	47,923
10th Grade	Mean	500.01	--	--	--	--	499.94
	S. D.	61.90	--	--	--	--	67.53
	N	45,651	--	--	--	--	45,651
11th Grade	Mean	--	537.88	527.66	542.98	519.61	--
	S. D.	--	51.30	59.32	66.63	74.41	--
	N	--	40,966	40,966	40,966	40,966	--

Table 5A. KCCT Descriptive Statistics by Grade and Content Area 2003 -- Total Sample

		RD	SC	MA	SS	AH	PL
4th Grade	Mean	546.24	546.63	--	--	--	--
	S. D.	44.57	41.45	--	--	--	--
	N	48,958	48,958	--	--	--	--
5th Grade	Mean	--	--	559.27	539.85	522.06	509.30
	S. D.	--	--	52.69	43.88	79.92	71.38
	N	--	--	49,971	49,971	49,971	49,971
7th Grade	Mean	512.01	500.46	--	--	--	--
	S. D.	40.47	39.52	--	--	--	--
	N	50,717	50,717	--	--	--	--
8th Grade	Mean	--	--	530.57	512.84	516.84	503.34
	S. D.	--	--	49.64	53.50	88.08	67.48
	N	--	--	49,572	49,572	49,572	49,572
10th Grade	Mean	504.90	--	--	--	--	504.43
	S. D.	61.52	--	--	--	--	69.77
	N	46,089	--	--	--	--	46,089
11th Grade	Mean	--	537.12	530.13	541.10	520.44	--
	S. D.	--	51.54	59.06	68.07	78.83	--
	N	--	40,968	40,968	40,968	40,968	--

APPENDIX B

Table 6B. Percentage of Students Retained in KCCT Merged Files

Files Merged	Merge cycle	Number Retained	Percent of KCCT Data File
1999 4th / 2002 7th	1st Merge	31,678	64.52%
	2nd Merge	37,218	75.80%
	3rd Merge	38,230	77.86%
	4th Merge	**38,704**	**78.83%**
1999 5th / 2002 8th	1st Merge	32,307	68.84%
	2nd Merge	36,236	77.21%
	3rd Merge	37,098	79.05%
	4th Merge	**37,569**	**80.05%**
1999 7th / 2002 10th	1st Merge	29,810	65.30%
	2nd Merge	33,297	72.94%
	3rd Merge	34,094	74.68%
	4th Merge	**34,394**	**75.34%**
1999 8th/ 2002 11th	1st Merge	28,880	70.50%
	2nd Merge	31,869	77.79%
	3rd Merge	32,567	79.50%
	4th Merge	**32,856**	**80.20%**
2000 8th/ 2002 10th	1st Merge	31,610	69.24%
	2nd Merge	34,743	76.11%
	3rd Merge	35,462	77.68%
	4th Merge	**35,751**	**78.31%**
2000 4th / 2003 7th	1st Merge	32,024	64.14%
	2nd Merge	36,968	74.04%
	3rd Merge	38,724	77.56%
	4th Merge	**39,393**	**78.89%**
2000 5th / 2003 8th	1st Merge	32,551	66.90%
	2nd Merge	36,441	74.90%
	3rd Merge	38,116	78.34%
	4th Merge	**38,713**	**79.57%**

Files Merged	Merge cycle	Number Retained	Percent of KCCT Data File
2000 7th / 2003 10th	1st Merge	29,549	64.11%
	2nd Merge	32,725	71.00%
	3rd Merge	34,127	74.05%
	4th Merge	**34,629**	**75.14%**
2000 8th / 2003 11th	1st Merge	27,959	68.25%
	2nd Merge	30,784	75.14%
	3rd Merge	32,107	78.37%
	4th Merge	**32,499**	**79.33%**
1999 7th / 2003 11th	1st Merge	26,527	64.75%
	2nd Merge	29,673	72.43%
	3rd Merge	31,005	75.68%
	4th Merge	**31,399**	**76.64%**
2001 8th / 2003 10th	1st Merge	30,987	67.23%
	2nd Merge	33,959	73.68%
	3rd Merge	35,376	76.75%
	4th Merge	**35,909**	**77.91%**
2001 4th / 2002 5th	1st Merge	38,639	77.67%
	2nd Merge	43,326	87.10%
	3rd Merge	44,156	88.77%
	4th Merge	**44,551**	**89.56%**
2001 7th / 2002 8th	1st Merge	37,519	78.22%
	2nd Merge	41,005	85.49%
	3rd Merge	41,789	87.12%
	4th Merge	**42,213**	**88.01%**
2001 10th / 2002 11th	1st Merge	32,459	81.49%
	2nd Merge	35,568	89.30%
	3rd Merge	36,222	90.94%
	4th Merge	**36,484**	**91.59%**
2002 4th / 2003 5th	1st Merge	37,073	74.51%
	2nd Merge	41,037	82.47%
	3rd Merge	42,703	85.82%
	4th Merge	**43,336**	**87.10%**

Files Merged	Merge cycle	Number Retained	Percent of KCCT Data File
2002 7th / 2003 8th	1st Merge	37,940	76.54%
	2nd Merge	41,034	82.78%
	3rd Merge	42,736	86.21%
	4th Merge	**43,357**	**87.46%**
2002 10th / 2003 11th	1st Merge	31,689	77.35%
	2nd Merge	34,415	84.00%
	3rd Merge	35,740	87.24%
	4th Merge	**36,149**	**88.24%**

APPENDIX C

Table 7C. KCCT Descriptive Statistics for 1999 Grade 4 and 2002 Grade 7

	Matched			Unmatched		
1999 Grade 4	Mean	S. D.	N	Mean	S. D.	N
Reading	545.73	41.01	38,718	522.22	62.44	10,395
Science	538.77	37.71	38,718	518.34	60.55	10,395
2002 Grade 7						
Reading	513.89	35.92	38,718	498.25	50.25	10,870
Science	502.76	35.44	38,718	488.38	50.09	10,870

Table 8C. KCCT Descriptive Statistics for 1999 Grade 5 and 2002 Grade 8

	Matched			Unmatched		
1999 Grade 5	Mean	S. D.	N	Mean	S. D.	N
Math	552.27	46.73	37,569	533.10	55.30	9,638
Social Studies	536.63	40.32	37,569	520.02	49.04	9,638
Arts & Humanities	504.86	69.99	37,569	478.30	71.38	9,638
Practical Living	503.51	69.59	37,569	479.26	72.89	9,638
2002 Grade 8						
Math	531.20	42.83	37,569	506.65	65.18	10,357
Social Studies	514.80	47.84	37,569	488.87	64.65	10,357
Arts & Humanities	515.95	66.47	37,569	483.79	75.67	10,357
Practical Living	505.38	60.57	37,569	478.77	70.91	10,357

Table 9C. KCCT Descriptive Statistics for 1999 Grade 7 and 2002 Grade 10

	Matched			Unmatched		
1999 Grade 7	Mean	S. D.	N	Mean	S. D.	N
Reading	515.93	36.18	34,394	487.35	48.93	14,067
Science	501.79	32.66	34,394	476.82	47.33	14,067
2002 Grade 10						
Reading	508.18	57.13	34,394	475.03	68.84	11,260
Practical Living	507.93	63.47	34,394	475.51	73.43	11,260

Table 10C. KCCT Descriptive Statistics for 1999 Grade 8 and 2002 Grade 11

	Matched			Unmatched		
1999 Grade 8	Mean	S. D.	N	Mean	S. D.	N
Math	532.00	42.28	32,855	495.90	59.23	16,562
Social Studies	512.48	43.04	32,855	475.29	55.45	16,562
Arts & Humanities	513.40	62.90	32,855	466.33	66.51	16,562
Practical Living	513.06	63.02	32,855	467.46	69.30	16,562
2002 Grade 11						
Math	534.02	52.45	32,855	501.90	76.17	8,110
Social Studies	549.98	59.84	32,855	514.61	83.15	8,110
Science	543.54	42.77	32,855	514.98	72.31	8,110
Arts & Humanities	526.76	69.74	32,855	490.61	84.96	8,110

Table 11C. KCCT Descriptive Statistics for 2000 Grade 8 and 2002 Grade 10

	Matched			Unmatched		
2000 Grade 8	Mean	S. D.	N	Mean	S. D.	N
Math	532.59	42.96	35,751	497.45	60.24	12,197
Social Studies	513.91	46.43	35,751	476.81	57.67	12,197
Arts & Humanities	517.21	64.83	35,751	470.53	71.55	12,197
Practical Living	508.62	61.67	35,751	466.35	68.67	12,197
2002 Grade 10						
Reading	507.03	58.14	35,751	474.61	68.11	9,905
Practical Living	506.69	64.36	35,751	475.51	72.85	9,905

Table 12C. KCCT Descriptive Statistics for 2000 Grade 4 and 2003 Grade 7

	Matched			Unmatched		
2000 Grade 4	Mean	S. D.	N	Mean	S. D.	N
Reading	546.30	40.19	39,393	528.09	54.27	10,542
Science	541.49	37.02	39,393	525.60	53.06	10,542
2003 Grade 7						
Reading	515.23	37.16	39,393	500.80	48.70	11,328
Science	503.40	36.22	39,393	490.21	47.92	11,328

Table 13C. KCCT Descriptive Statistics for 2000 Grade 5 and 2003 Grade 8

	Matched			Unmatched		
2000 Grade 5	Mean	S. D.	N	Mean	S. D.	N
Math	554.84	47.49	38,713	535.19	57.10	9,943
Social Studies	537.09	40.72	38,713	520.40	49.06	9,943
Arts & Humanities	509.38	69.57	38,713	483.14	71.25	9,943
Practical Living	504.17	69.21	38,713	479.49	71.82	9,943
2003 Grade 8						
Math	535.25	43.76	38,713	513.92	63.75	10,863
Social Studies	517.70	49.18	38,713	495.52	63.72	10,863
Arts & Humanities	524.24	85.43	38,713	490.46	92.20	10,863
Practical Living	508.65	64.65	38,713	484.40	73.65	10,863

Table 14C. KCCT Descriptive Statistics for 2000 Grade 7 and 2003 Grade 10

	Matched			Unmatched		
2000 Grade 7	Mean	S. D.	N	Mean	S. D.	N
Reading	514.31	36.70	34,629	489.64	46.16	13,896
Science	501.95	34.34	34,629	479.46	46.23	13,896
2003 Grade 10						
Reading	512.87	56.99	34,629	480.79	68.08	11,466
Practical Living	512.39	66.29	34,629	480.38	74.38	11,466

Table 15C. KCCT Descriptive Statistics for 2000 Grade 8 and 2003 Grade 11

	Matched			Unmatched		
2000 Grade 8	Mean	S. D.	N	Mean	S. D.	N
Math	534.77	42.08	32,499	500.27	57.70	15,445
Social Studies	516.29	45.90	32,499	479.64	55.51	15,445
Arts & Humanities	520.31	64.33	32,499	473.83	69.85	15,445
Practical Living	511.42	61.35	32,499	469.36	66.76	15,445
2003 Grade 11						
Math	536.38	52.59	32,499	506.10	74.49	8,476
Social Studies	548.07	62.23	32,499	514.26	81.64	8,476
Science	542.54	43.94	32,499	516.25	70.04	8,476
Arts & Humanities	528.37	74.30	32,499	489.95	87.82	8,476

Table 16C. KCCT Descriptive Statistics for 1999 Grade 7 and 2003 Grade 11

	Matched			Unmatched		
1999 Grade 7	Mean	S. D.	N	Mean	S. D.	N
Reading	537.30	35.74	31,399	489.26	47.12	17,059
Science	503.33	32.10	31,399	478.37	45.41	17,059
2003 Grade 11						
Math	537.30	51.27	31,399	506.61	74.74	9,572
Social Studies	548.96	61.11	31,399	515.29	81.96	9,572
Science	543.43	42.35	31,399	516.44	70.19	9,572
Arts & Humanities	529.56	73.61	31,399	490.54	87.51	9,572

Table 17C. KCCT Descriptive Statistics for 2001 Grade 8 and 2003 Grade 10

	Matched			Unmatched		
2001 Grade 8	Mean	S. D.	N	Mean	S. D.	N
Math	534.84	43.47	35,909	501.90	59.12	12,198
Social Studies	517.49	48.90	35,909	480.79	58.63	12,198
Arts & Humanities	519.01	65.24	35,909	474.87	70.36	12,198
Practical Living	509.53	60.93	35,909	469.38	66.77	12,198
2003 Grade 10						
Reading	512.07	57.65	35,909	479.57	67.77	10,185
Practical Living	511.56	66.88	35,909	479.31	73.85	10,185

Table 18C. KCCT Descriptive Statistics for 2001 Grade 4 and 2002 Grade 5

	Matched			Unmatched		
2001 Grade 4	Mean	S. D.	N	Mean	S. D.	N
Reading	545.76	41.20	44,551	523.55	62.07	5,873
Science	543.99	38.93	44,551	523.80	62.22	5,873
2002 Grade 5						
Math	559.60	48.57	44,551	541.68	61.63	5,948
Social Studies	539.09	41.84	44,551	522.98	54.43	5,948
Arts & Humanities	519.70	69.89	44,551	498.23	71.36	5,948
Practical Living	508.12	67.73	44,551	488.10	70.24	5,948

Table 19C. KCCT Descriptive Statistics for 2001 Grade 7 and 2002 Grade 8

	Matched			Unmatched		
2001 Grade 7	Mean	S. D.	N	Mean	S. D.	N
Reading	511.93	38.05	42,213	490.02	49.39	5,760
Science	499.38	36.96	42,213	479.72	49.50	5,760
2002 Grade 8						
Math	529.66	44.76	42,213	498.08	70.29	5,714
Social Studies	513.06	49.39	42,213	480.60	68.04	5,714
Arts & Humanities	513.72	67.30	42,213	474.11	77.83	5,714
Practical Living	503.66	61.56	42,213	469.83	72.34	5,714

Table 20C. KCCT Descriptive Statistics for 2001 Grade 10 and 2002 Grade 11

	Matched			Unmatched		
2001 Grade 10	Mean	S. D.	N	Mean	S. D.	N
Reading	512.37	57.13	36,484	461.86	64.70	9,506
Practical Living	508.80	62.85	36,484	461.83	69.43	9,506
2002 Grade 11						
Math	532.57	54.47	36,484	487.64	78.88	4,486
Social Studies	548.48	61.87	36,484	498.11	84.60	4,486
Science	542.22	45.07	36,484	502.61	78.23	4,486
Arts & Humanities	525.21	71.28	36,484	473.93	83.11	4,486

Table 21C. KCCT Descriptive Statistics for 2002 Grade 4 and 2003 Grade 5

	Matched			Unmatched		
2002 Grade 4	Mean	S. D.	N	Mean	S. D.	N
Reading	546.66	42.08	43,336	529.49	57.32	6,425
Science	544.23	39.44	43,336	528.46	55.76	6,425
2003 Grade 5						
Math	561.78	50.29	43,336	542.89	63.90	6,636
Social Studies	541.87	41.35	43,336	526.72	55.99	6,636
Arts & Humanities	525.30	78.89	43,336	500.88	83.30	6,636
Practical Living	511.82	70.41	43,336	492.83	75.36	6,636

Table 22C. KCCT Descriptive Statistics for 2002 Grade 7 and 2002 Grade 8

	Matched			Unmatched		
2002 Grade 7	Mean	S. D.	N	Mean	S. D.	N
Reading	513.30	37.61	43,357	490.65	49.73	6,230
Science	502.26	36.98	43,357	481.13	50.65	6,230
2003 Grade 8						
Math	534.40	44.64	43,357	503.83	70.31	6,227
Social Studies	516.71	49.94	43,357	485.80	67.84	6,227
Arts & Humanities	522.43	85.86	43,357	477.77	93.32	6,227
Practical Living	507.62	65.16	43,357	473.45	75.32	6,227

Table 23C. KCCT Descriptive Statistics for 2002 Grade 10 and 2003 Grade 11

	Matched			Unmatched		
2002 Grade 10	Mean	S. D.	N	Mean	S. D.	N
Reading	509.91	57.75	36,149	462.32	62.68	9,503
Practical Living	509.12	64.20	36,149	465.02	68.45	9,503
2003 Grade 11						
Math	535.35	53.59	36,149	490.96	79.85	4,825
Social Studies	546.74	63.36	36,149	498.80	85.18	4,825
Science	541.60	45.16	36,149	503.52	77.50	4,825
Arts & Humanities	526.54	75.48	36,149	474.69	87.83	4,825

APPENDIX D

Table 24D. KCCT Correlations Between 1999 Grade 4 and 2002 Grade 7

Variable	1	2	3	4
Grade 4				
1. Reading	1.00			
2. Science	*.77*	1.00		
Grade 7				
3. Reading	**<u>.63</u>**	**.58**	1.00	
4. Science	**.60**	**<u>.62</u>**	*.78*	1.00

Table 25D. KCCT Correlations Between 1999 Grade 5 and 2002 Grade 8

Variables	1	2	3	4	5	6	7	8
Grade 5								
1. Math	1.00							
2. Social Studies	*.75*	1.00						
3. Arts & Humanities	*.61*	*.67*	1.00					
4. Practical Living	*.60*	*.65*	*.59*	1.00				
Grade 8								
5. Math	**<u>.69</u>**	**.61**	**.52**	**.51**	1.00			
6. Social Studies	**.63**	**<u>.66</u>**	**.58**	**.55**	*.77*	1.00		
7. Arts & Humanities	**.54**	**.59**	**<u>.52</u>**	**.48**	*.65*	*.75*	1.00	
8. Practical Living	**.53**	**.55**	**.49**	**<u>.48</u>**	*.63*	*.72*	*.66*	1.00

Table 26D. KCCT Correlations Between 1999 Grade 7 and 2002 Grade 10

Variable	1	2	3	4
Grade 7				
1. Reading	1.00			
2. Science	*.75*	1.00		
Grade 10				
3. Reading	**<u>.68</u>**	**.61**	1.00	
4. Science	**.58**	**<u>.55</u>**	*.71*	1.00

Table 27D. KCCT Correlations Between 1999 Grade 8 and 2002 Grade 11

Variables	1	2	3	4	5	6	7	8
Grade 8								
1. Math	1.00							
2. Social Studies	*.75*	1.00						
3. Arts & Humanities	*.61*	*.69*	1.00					
4. Practical Living	*.62*	*.69*	*.59*	1.00				
Grade 11								
5. Math	**<u>.72</u>**	**.65**	**.54**	**.55**	1.00			
6. Social Studies	**.64**	**<u>.71</u>**	**.59**	**.59**	*.74*	1.00		
7. Science	**.66**	**.67**	**.53**	**.54**	*.76*	*.77*	1.00	
8. Arts & Humanities	**.56**	**.62**	**<u>.55</u>**	**.54**	*.65*	*.76*	*.66*	1.00

Table 28D. KCCT Correlations Between 2000 Grade 8 and 2002 Grade 10

Variables	1	2	3	4	5	6
Grade 8						
1. Math	1.00					
2. Social Studies	*.76*	1.00				
3. Arts & Humanities	*.64*	*.71*	1.00			
4. Practical Living	*.63*	*.69*	*.63*	1.00		
Grade 10						
5. Reading	**.65**	**.71**	**.63**	**.61**	1.00	
6. Practical Living	**.58**	**.61**	**.54**	**<u>.53</u>**	*.72*	1.00

Table 29D. KCCT Correlations Between 2000 Grade 4 and 2003 Grade 7

Variable	1	2	3	4
Grade 4				
1. Reading	1.00			
2. Science	*.80*	1.00		
Grade 7				
3. Reading	**<u>.64</u>**	**.58**	1.00	
4. Science	**.61**	**<u>.62</u>**	*.79*	1.00

Table 30D. KCCT Correlations Between 2000 Grade 5 and 2003 Grade 8

Variables	1	2	3	4	5	6	7	8
Grade 5								
1. Math	1.00							
2. Social Studies	*.77*	1.00						
3. Arts & Humanities	*.64*	*.69*	1.00					
4. Practical Living	*.60*	*.65*	*.59*	1.00				
Grade 8								
5. Math	**.68**	**.61**	**.54**	**.49**	1.00			
6. Social Studies	**.62**	**.65**	**.57**	**.53**	*.76*	1.00		
7. Arts & Humanities	**.54**	**.56**	**.52**	**.47**	*.64*	*.72*	1.00	
8. Practical Living	**.54**	**.57**	**.51**	**.48**	*.65*	*.72*	*.65*	1.00

Table 31D. KCCT Correlations Between 2000 Grade 7 and 2003 Grade 19

Variable	1	2	3	4
Grade 7				
1. Reading	1.00			
2. Science	*.77*	1.00		
Grade 10				
3. Reading	**.69**	**.62**	1.00	
4. Practical Living	**.57**	**.53**	*.69*	1.00

Table 32D. KCCT Correlations Between 2000 Grade 8 and 2003 Grade 11

Variables	1	2	3	4	5	6	7	8
Grade 8								
1. Math	1.00							
2. Social Studies	*.76*	1.00						
3. Arts & Humanities	*.64*	*.70*	1.00					
4. Practical Living	*.62*	*.68*	*.61*	1.00				
Grade 11								
5. Math	**<u>.74</u>**	**.65**	**.57**	**.54**	1.00			
6. Social Studies	**.65**	**<u>.70</u>**	**.59**	**.58**	*.74*	1.00		
7. Science	**.68**	**.66**	**.55**	**.53**	*.78*	*.77*	1.00	
8. Arts & Humanities	**.58**	**.62**	**<u>.56</u>**	**.53**	*.66*	*.74*	*.67*	1.00

Table 33D. KCCT Correlations Between 1999 Grade 7 and 2003 Grade 11

Variables	1	2	3	4	5	6
Grade 7						
1. Reading	1.00					
2. Science	*.74*	1.00				
Grade 11						
3. Math	**.60**	**.63**	1.00			
4. Social Studies	**.63**	**.63**	*.73*	1.00		
5. Science	**.58**	**<u>.66</u>**	*.77*	*.76*	1.00	
6. Arts & Humanities	**.59**	**.56**	*.66*	*.73*	*.66*	1.00

Table 34D. KCCT Correlations Between 2001 Grade 8 and 2003 Grade 10

Variables	1	2	3	4	5	6
Grade 8						
1. Math	1.00					
2. Social Studies	.78	1.00				
3. Arts & Humanities	.66	.75	1.00			
4. Practical Living	.66	.73	.67	1.00		
Grade 10						
5. Reading	**.66**	**.73**	**.66**	**.63**	1.00	
6. Practical Living	**.57**	**.61**	**.55**	**<u>.54</u>**	.70	1.00

Table 35D. KCCT Correlations Between 2001 Grade 4 and 2002 Grade 5

Variables	1	2	3	4	5	6
Grade 4						
1. Reading	1.00					
2. Science	.83	1.00				
Grade 5						
3. Math	**.68**	**.67**	1.00			
4. Social Studies	**.71**	**.69**	.78	1.00		
5. Arts & Humanities	**.59**	**.55**	.63	.68	1.00	
6. Practical Living	**.58**	**.53**	.61	.67	.60	1.00

Table 36D. KCCT Correlations Between 2001 Grade 7 and 2002 Grade 8

Variables	1	2	3	4	5	6
Grade 7						
1. Reading	1.00					
2. Science	*.80*	1.00				
Grade 8						
3. Math	**.70**	**.70**	1.00			
4. Social Studies	**.75**	**.71**	*.78*	1.00		
5. Arts & Humanities	**.65**	**.60**	*.66*	*.76*	1.00	
6. Practical Living	**.63**	**.59**	*.65*	*.73*	*.68*	1.00

Table 37D. KCCT Correlations Between 2001 Grade 10 and 2002 Grade 11

Variables	1	2	3	4	5	6
Grade 10						
1. Reading	1.00					
2. Practical Living	*.72*	1.00				
Grade 11						
3. Math	**.68**	**.59**	1.00			
4. Social Studies	**.75**	**.64**	*.75*	1.00		
5. Science	**.66**	**.59**	*.77*	*.78*	1.00	
6. Arts & Humanities	**.69**	**.59**	*.66*	*.77*	*.67*	1.00

Table 38D. KCCT Correlations Between 2002 Grade 4 and 2003 Grade 5

Variables	1	2	3	4	5	6
Grade 4						
1. Reading	1.00					
2. Science	*.83*	1.00				
Grade 5						
3. Math	**.64**	**.64**	1.00			
4. Social Studies	**.68**	**.67**	*.76*	1.00		
5. Arts & Humanities	**.57**	**.54**	*.63*	*.66*	1.00	
6. Practical Living	**.55**	**.51**	*.59*	*.64*	*.58*	1.00

Table 39D. KCCT Correlations Between 2002 Grade 7 and 2003 Grade 8

Variables	1	2	3	4	5	6
Grade 7						
1. Reading	1.00					
2. Science	*.80*	1.00				
Grade 8						
3. Math	**.67**	**.69**	1.00			
4. Social Studies	**.72**	**.70**	*.77*	1.00		
5. Arts & Humanities	**.62**	**.59**	*.64*	*.72*	1.00	
6. Practical Living	**.62**	**.60**	*.66*	*.72*	*.65*	1.00

Table 40D. KCCT Correlations Between 2002 Grade 10 and 2003 Grade 11

Variables	1	2	3	4	5	6
Grade 10						
1. Reading	1.00					
2. Practical Living	*.72*	1.00				
Grade 11						
3. Math	**.69**	**.59**	1.00			
4. Social Studies	**.73**	**.63**	*.75*	1.00		
5. Science	**.66**	**.58**	*.78*	*.78*	1.00	
6. Arts & Humanities	**.68**	**.58**	*.67*	*.75*	*.67*	1.00

APPENDIX E

Table 41E. KCCT Files Included in the Demographic Analyses

<u>Merged Files:</u>

1. 1999 7th Grade/ 2003 11th Grade

2. 2000 4th Grade/ 2003 7th Grade

3. 2000 5th Grade/ 2003 8th Grade

4. 2000 7th Grade/ 2003 10th Grade

5. 2000 8th Grade/ 2003 11th Grade

6. 2001 8th Grade/ 2003 10th Grade

Table 42F. KCCT1 Descriptive Statistics by Gender

Data File:	Sub-Group:	Reading				Science				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
1999 7th	Male					503.96	33.72	15,244	.04				
	Female					502.75	30.51	16,247					
2000 4th	Male	540.97	40.47	19,521	-.27	541.59	40.00	19,521	.01				
	Female	551.54	39.22	19,839		541.38	34.96	19,839					
2000 5th	Male									553.16	49.23	19,124	-.07
	Female									556.55	45.52	19,561	
2000 7th	Male	507.38	36.57	16,777	-.37								
	Female	520.89	35.53	17,823									
2000 8th	Male									533.97	44.46	15,802	-.04
	Female									535.54	39.68	16,689	
2001 8th	Male												
	Female												

Data File:	Sub-Group:	Social Studies				Arts & Humanities				Practical Living/ Vocational			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
1999 7th	Male												
	Female												
2000 4th	Male												
	Female												
2000 5th	Male	534.29	41.32	19,124	-.14	500.65	67.08	19,124	-.25	496.46	67.25	19,124	-.22
	Female	539.87	39.85	19,561		517.98	70.84	19,561		511.78	70.23	19,561	
2000 7th	Male												
	Female												
2000 8th	Male	512.15	46.53	15,802	-.18	509.75	62.82	15,802	-.33				
	Female	520.22	44.96	16,689		530.32	64.15	16,689					
2001 8th	Male									500.98	60.17	17,483	-.28
	Female									517.73	60.48	18,397	

Table 43F. KCCT2 Descriptive Statistics by Gender

Data File:	Sub-Group:	Reading				Science				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
2003 7th	Male	507.52	36.87	19,521	-.43	503.16	37.68	19,521	-.02				
	Female	522.97	35.43	19,839		503.79	34.36	19,839					
2003 8th	Male									533.48	45.70	19,124	-.08
	Female									537.04	41.60	19,561	
2003 10th	Male	500.42	57.39	16,777	-.43								
	Female	524.65	53.99	17,823									
2003 11th	Male					545.21	45.03	15,144	.08	535.24	55.82	15,802	-.04
	Female					541.77	39.62	16,247		537.45	49.32	16,689	

Data File:	Sub-Group:	Social Studies				Arts & Humanities				Practical Living/ Vocational			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
2003 7th	Male												
	Female												
2003 8th	Male	512.50	48.53	19,124	-.21	508.38	82.70	19,124	-.37	499.09	63.89	19,124	-.30
	Female	522.84	49.21	19,561		539.82	85.18	19,561		518.10	63.96	19,561	
2003 10th	Male									501.22	66.24	17,483	-.31
	Female									521.45	65.96	18,397	
2003 11th	Male	544.36	63.65	15,802	-.12	516.05	74.52	15,802	-.33				
	Female	551.59	60.64	16,689		540.03	72.18	16,689					

Table 44G. KCCT Regression Results Showing Gender Effects at the Elementary to Middle School Level

Predictors:	Reading			Science			Math			Social Studies			A&H			PLVS		
	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2003 KCCT$_2$ 7th Grade																		
2000 KCCT$_1$ 4th																		
Step 1: Read	.64	.41																
Step 2: Gender	.13	.43	.02															
2000 KCCT$_1$ 4th																		
Step 1: Science				.63	.39													
Step 2: Gender				.01	.39	.00												
2003 KCCT$_2$ 8th Grade																		
2000 KCCT$_1$ 5th																		
Step 1: Math							.68	.46										
Step 2: Gender							.02	.46	.00									
2000 KCCT$_1$ 5th																		
Step 1: Social										.65	.43							
Step 2: Gender										.06	.43	.00						
2000 KCCT$_1$ 5th																		
Step 1: A&H													.52	.27				
Step 2: Gender													.12	.28	.01			
2000 KCCT$_1$ 5th																		
Step 1: PLVS																.48	.23	
Step 2: Gender																.10	.24	.01

Table 45G. KCCT Regression Results Showing Gender Effects at the Middle School to High School Level

	Reading			Science			Math			Social Studies			A&H			PLVS		
Predictors:	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2003 KCCT$_2$ 10th Grade																		
2000 KCCT$_1$ 7th																		
Step 1: Read	.69	.47																
Step 2: Gender	.09	.48	.01															
2003 KCCT$_2$ 11th Grade																		
1999 KCCT$_1$ 7th																		
Step 1: Science				.66	.43													
Step 2: Gender				-.03	.43	.00												
2003 KCCT$_2$ 11th Grade																		
2000 KCCT$_1$ 8th																		
Step 1: Math							.74	.55										
Step 2: Gender							.01	.55	.00									
2000 KCCT$_1$ 8th																		
Step 1: Social										.70	.49							
Step 2: Gender										.00	.49	.00						
2000 KCCT$_1$ 8th																		
Step 1: A&H													.56	.32				
Step 2: Gender													.07	.32	.00			
2003 KCCT$_2$ 10th Grade																		
2000 KCCT$_1$ 8th																		
Step 1: PLVS																.54	.29	
Step 2: Gender																.08	.29	.01

Table 46H. KCCT1 Descriptive Statistics by SES

Data File:	Sub-Group:	Reading				Science				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
1999 7th	Lower					492.17	33.21	10,368	-.58				
	Higher					509.80	27.59	12,347					
2000 4th	Lower	535.35	38.99	18,425	-.60	531.75	37.06	18,425	-.59				
	Higher	557.69	35.41	15,201		551.71	30.82	15,201					
2000 5th	Lower									539.74	47.78	17,616	-.66
	Higher									569.04	40.44	15,394	
2000 7th	Lower	502.15	35.20	13,007	-.63								
	Higher	523.51	32.34	12,369									
2000 8th	Lower									518.76	44.21	10,722	-.62
	Higher									543.71	35.54	12,090	
2001 8th	Lower												
	Higher												

Data File:	Sub-Group:	Social Studies				Arts & Humanities				Practical Living/ Vocational			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
1999 7th	Lower												
	Higher												
2000 4th	Lower												
	Higher												
2000 5th	Lower	524.40	39.87	17,616	-.66	488.49	65.78	17,616	-.61	485.02	65.54	17,616	-.56
	Higher	549.09	35.29	15,394		528.54	66.27	15,394		522.03	66.66	15,394	
2000 7th	Lower												
	Higher												
2000 8th	Lower	499.04	44.63	10,722	-.63	499.13	60.85	10,722	-.55				
	Higher	526.27	41.92	12,090		532.71	61.78	12,090					
2001 8th	Lower									488.58	56.13	13,135	-.58
	Higher									522.01	58.93	11,540	

Table 47H. KCCT2 Descriptive Statistics by SES

Data File:	Sub-Group:	Reading				Science				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
2003 7th	Lower	504.02	37.16	18,425	-.64	492.26	36.82	18,425	-.65				
	Higher	526.48	32.60	15,201		514.29	30.76	15,201					
2003 8th	Lower									520.32	45.92	17,616	-.69
	Higher									548.70	36.01	15,394	
2003 10th	Lower	490.71	55.27	13,007	-.68								
	Higher	527.83	53.11	12,369									
2003 11th	Lower					528.06	45.31	10,368	-.56	515.48	54.62	10,722	-.61
	Higher					551.29	37.30	12,347		546.58	46.52	12,090	

Data File:	Sub-Group:	Social Studies				Arts & Humanities				Practical Living/Vocational			
2003 7th	Lower												
	Higher												
2003 8th	Lower	500.28	47.23	17,616	-.71	496.93	80.80	17,616	-.64	489.00	62.13	17,616	-.61
	Higher	533.17	44.76	15,394		548.76	81.00	15,394		526.42	61.10	15,394	
2003 10th	Lower									488.81	63.52	13,135	-.55
	Higher									523.98	63.68	11,540	
2003 11th	Lower	523.70	59.95	10,722	-.61	501.82	71.66	10,722	-.56				
	Higher	560.26	59.19	12,090		541.81	70.93	12,090					

Table 48I. Regression Results Showing SES Effects at the Elementary to Middle School Level

2003 KCCT$_2$ 7th Grade

Predictors:	Reading			Science			Math			Social Studies			A&H			PLVS		
	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2000 KCCT$_1$ 4th																		
Step 1: Read	.63	.40																
Step 2: SES	.13	.42	.02															
2000 KCCT$_1$ 4th																		
Step 1: Science				.62	.38													
Step 2: SES				.15	.40	.02												

2003 KCCT$_2$ 8th Grade

Predictors:	Reading			Science			Math			Social Studies			A&H			PLVS		
2000 KCCT$_1$ 5th																		
Step 1: Math							.67	.45										
Step 2: SES							.13	.46	.01									
2000 KCCT$_1$ 5th																		
Step 1: Social										.65	.43							
Step 2: SES										.15	.45	.02						
2000 KCCT$_1$ 5th																		
Step 1: A&H													.52	.27				
Step 2: SES													.17	.29	.02			
2000 KCCT$_1$ 5th																		
Step 1: PLVS																.48	.23	
Step 2: SES																.17	.26	.03

Table 49I. Regression Results Showing SES Effects at the Middle School to High School Level

2003 KCCT$_2$ 10th Grade

Predictors:	Reading			Science			Math			Social Studies			A&H			PLVS		
	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2000 KCCT$_1$ 7th																		
Step 1: Read	.70	.50																
Step 2: SES	.12	.51	.01															

2003 KCCT$_2$ 11th Grade

1999 KCCT$_1$ 7th																		
Step 1: Science				.66	.43													
Step 2: SES				.10	.44	.01												

2003 KCCT$_2$ 11th Grade

2000 KCCT$_1$ 8th																		
Step 1: Math							.74	.55										
Step 2: SES							.08	.56	.01									

2000 KCCT$_1$ 8th																		
Step 1: Social										.70	.50							
Step 2: SES										.09	.50	.01						

2000 KCCT$_1$ 8th																		
Step 1: A&H													.57	.33				
Step 2: SES													.13	.34	.01			

2003 KCCT$_2$ 10th Grade

2000 KCCT$_1$ 8th																		
Step 1: PLVS																.54	.29	
Step 2: SES																.13	.31	.01

Table 50J. KCCT1 Descriptive Statistics by Race

Data File:	Sub-Group:	Reading				Science				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
1999 7th	White					505.52	30.51	27,857					
	African American					482.15	34.49	2,765	.72				
	Hispanic					488.22	55.70	215	.39				
2000 4th	White	549.09	38.41	34,197		544.09	34.73	34,197					
	African American	527.09	40.79	4,185	.55	519.86	39.39	4,185	.63				
	Hispanic	518.16	78.61	319	.50	512.97	74.84	319	.53				
2000 5th	White									558.38	45.24	33,595	
	African American									529.33	48.56	4,012	.62
	Hispanic									519.41	84.74	322	.57
2000 7th	White	516.40	35.33	30,600									
	African American	496.85	36.96	3,114	.54								
	Hispanic	480.38	71.70	242	.64								
2000 8th	White									537.48	40.05	28,787	
	African American									509.44	44.92	2,848	.66
	Hispanic									512.20	71.52	249	.44
2001 8th	White												
	African American												
	Hispanic												

Table 50J cont. KCCT$_1$ Descriptive Statistics by Race

Data File:	Sub-Group:	Social Studies				Arts & Humanities				Practical Living/Vocational			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
1999 7th	White												
	African American												
	Hispanic												
2000 4th	White												
	African American												
	Hispanic												
2000 5th	White	540.06	38.91	33,595		513.67	68.66	33,595		508.51	68.39	33,595	
	African American	516.29	40.36	4012	.60	476.64	64.89	4,012	.55	472.51	64.06	4,012	.54
	Hispanic	503.85	77.96	322	.59	476.27	85.95	322	.48	470.22	84.36	322	.50
2000 7th	White												
	African American												
	Hispanic												
2000 8th	White	518.82	44.68	28,787		523.25	63.70	28,787					
	African American	492.34	44.24	2,848	.60	492.13	58.61	2,848	.51				
	Hispanic	492.33	68.96	249	.46	495.36	77.06	249	.39				
2001 8th	White									512.91	59.73	31,646	
	African American									481.43	58.37	3,240	.53
	Hispanic									465.70	86.09	296	.64

Table 51J. KCCT2 Descriptive Statistics by Race

Data File:	Sub-Group:	Reading				Science				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
2003 7th	White	517.49	36.23	34,197		506.26	34.72	34,197					
	African American	496.60	39.51	4,185	.55	480.16	39.61	4,185	.70				
	Hispanic	512.96	35.23	319	.13	500.50	34.85	319	.17				
2003 8th	White									538.55	41.74	33,595	
	African American									507.81	49.22	4,012	.67
	Hispanic									527.74	43.01	322	.26
2003 10th	White	515.24	56.40	30,600									
	African American	488.14	55.96	3,114	.48								
	Hispanic	504.36	51.59	242	.20								
2003 11th	White					545.75	41.19	27,857		539.01	51.22	28,787	
	African American					518.13	44.81	2,765	.64	507.62	56.47	2,848	.58
	Hispanic					542.61	36.12	215	.08	530.39	49.61	249	.17

Data File:	Sub-Group:	Social Studies				Arts & Humanities				Practical Living/Vocational			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
2003 7th	White												
	African American												
	Hispanic												
2003 8th	White	521.18	48.02	33,595		529.11	84.62	33,595		512.73	63.52	33,595	
	African American	488.91	48.09	4,012	.67	483.05	78.70	4,012	.56	475.03	63.32	4,012	.59
	Hispanic	508.79	47.37	322	.26	509.11	84.66	322	.24	498.18	61.04	322	.23
2003 10th	White									514.61	66.31	31,646	
	African American									482.62	65.24	3,240	.48
	Hispanic									493.23	63.56	296	.33
2003 11th	White	550.35	61.53	28,787		530.91	73.79	28,787					
	African American	521.65	61.09	2,848	.47	499.50	71.72	2,848	.43				
	Hispanic	544.31	57.68	249	.10	526.14	69.78	249	.06				

Table 52K. KCCT Regression Results Showing Race Effects (African American/White) at the Elementary to Middle School Level

	2003 $KCCT_2$ 7th Grade																	
	Reading			Science			Math			Social Studies			A&H			PLVS		
Predictors:	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2000 $KCCT_1$ 4th																		
Step 1: Read	.64	.41																
Step 2: AA/W	-.07	.41	.00															
2000 $KCCT_1$ 4th																		
Step 1: Science				.62	.39													
Step 2: AA/W				-.10	.40	.01												
	2003 $KCCT_2$ 8th Grade																	
2000 $KCCT_1$ 5th																		
Step 1: Math							.68	.46										
Step 2: AA/W							-.09	.46	.01									
2000 $KCCT_1$ 5th																		
Step 1: Social										.65	.43							
Step 2: AA/W										-.09	.44	.01						
2000 $KCCT_1$ 5th																		
Step 1: A&H													.52	.27				
Step 2: AA/W													-.08	.27	.01			
2000 $KCCT_1$ 5th																		
Step 1: PLVS																.48	.23	
Step 2: AA/W																-.11	.24	.01

Table 53K. KCCT Regression Results Showing Race Effects (African American/White) at the Middle to High School Level

2003 KCCT$_2$ 10th Grade

Predictors:	Reading			Science			Math			Social Studies			A&H			PLVS		
	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2000 KCCT$_1$ 7th																		
Step 1: Read	.69	.47																
Step 2: AA/W	-.03	.47	.00															

2003 KCCT$_2$ 11th Grade

1999 KCCT$_1$ 7th																		
Step 1: Science				.66	.43													
Step 2: AA/W				-.05	.43	.00												

2003 KCCT$_2$ 11th Grade

2000 KCCT$_1$ 8th																		
Step 1: Math							.74	.55										
Step 2: AA/W							-.03	.55	.00									

2000 KCCT$_1$ 8th																		
Step 1: Social										.70	.49							
Step 2: AA/W										-.02	.49	.00						

2000 KCCT$_1$ 8th																		
Step 1: A&H													.56	.32				
Step 2: AA/W													-.05	.32	.00			

2003 KCCT$_2$ 10th Grade

2000 KCCT$_1$ 8th																		
Step 1: PLVS																.54	.29	
Step 2: AA/W																-.06	.29	.00

Table 54L. KCCT Regression Results Showing Race Effects (Hispanic/White) at the Elementary to Middle School Level

	Reading			Science			Math			Social Studies			A&H			PLVS		
2003 KCCT$_2$ 7th Grade																		
Predictors:	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2000 KCCT$_1$ 4th																		
Step 1: Read	.64	.41																
Step 2: H/W	.04	.41	.00															
2000 KCCT$_1$ 4th																		
Step 1: Science				.62	.39													
Step 2: H/W				.04	.39	.00												
2003 KCCT$_2$ 8th Grade																		
2000 KCCT$_1$ 5th																		
Step 1: Math							.68	.46										
Step 2: H/W							.03	.46	.00									
2000 KCCT$_1$ 5th																		
Step 1: Social										.65	.43							
Step 2: H/W										.03	.43	.00						
2000 KCCT$_1$ 5th																		
Step 1: A&H													.52	.27				
Step 2: H/W													.01	.27	.00			
2000 KCCT$_1$ 5th																		
Step 1: PLVS																.48	.23	
Step 2: H/W																.01	.23	.00

Table 55L. KCCT Regression Results Showing Race Effects (Hispanic/White) at the Middle School to High School Level

	Reading			Science			Math			Social Studies			A&H			PLVS		
Predictors:	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2003 KCCT$_2$ 10th Grade																		
2000 KCCT$_1$ 7th																		
Step 1: Read	.69	.47																
Step 2: H/W	.04	.48	.00															
2003 KCCT$_2$ 11th Grade																		
1999 KCCT$_1$ 7th																		
Step 1: Science				.66	.43													
Step 2: H/W				.02	.43	.00												
2003 KCCT$_2$ 11th Grade																		
2000 KCCT$_1$ 8th																		
Step 1: Math							.74	.55										
Step 2: H/W							.03	.55	.00									
2000 KCCT$_1$ 8th																		
Step 1: Social										.70	.49							
Step 2: H/W										.03	.49	.00						
2000 KCCT$_1$ 8th																		
Step 1: A&H													.56	.32				
Step 2: H/W													.02	.32	.00			
2003 KCCT$_2$ 10th Grade																		
2000 KCCT$_1$ 8th																		
Step 1: PLVS																.54	.29	
Step 2: H/W																.01	.29	.00

APPENDIX M

Table 56M. CTBS Descriptive Statistics by Grade and Content Area 2001 -- Total Sample

		Reading	Language	Math	Total Score
Grade 3	*M*	637.53	633.61	615.13	628.78
	SD	42.98	39.49	43.07	37.49
	N	49,678	49,671	49,664	49,650
Grade 6	*M*	662.76	659.73	662.26	661.62
	SD	41.41	43.18	49.77	40.01
	N	48,598	48,595	48,573	48,549
Grade 9	*M*	683.60	676.51	696.62	685.64
	SD	39.79	46.89	52.56	41.20
	N	49,988	49,980	49,953	49,890

Table 57M. CTBS Descriptive Statistics by Grade and Content Area 2004 -- Total Sample

		Reading	Language	Math	Total Score
Grade 3	*M*	644.22	640.50	624.65	636.47
	SD	42.59	39.32	43.75	37.15
	N	47,774	47,772	47,765	47,759
Grade 6	*M*	665.12	661.70	667.05	664.65
	SD	40.88	43.39	49.35	39.66
	N	50,006	50,005	49,974	49,969
Grade 9	*M*	686.58	679.03	701.04	688.94
	SD	39.27	46.84	53.93	41.41
	N	51,508	51,505	51,484	51,439

APPENDIX N

Table 58N. Percentage of Students Retained in CTBS Merged Files

Files Merged	Merge cycle	Number Retained	Percent of CTBS Data File
2001 3rd / 2004 6th	1st Merge	32,256	64.97%
	2nd Merge	35,709	71.92%
	3rd Merge	36,779	74.08%
	4th Merge	**38,635**	**77.81%**
2001 6th / 2004 9th	1st Merge	31,863	65.63%
	2nd Merge	34,256	70.56%
	3rd Merge	35,326	72.76%
	4th Merge	**37,165**	**76.55%**

Table 59O. CTBS Descriptive Statistics for 2001 Grade 3 and 2004 Grade 6

2001 Grade 3	Matched			Unmatched			Mean Difference
	Mean	S. D.	N	Mean	S. D.	N	
Reading	640.72	41.92	38,367	626.70	44.74	11,319	14.02
Language	636.71	38.68	38,364	623.11	40.40	11,315	13.60
Math	618.56	41.85	38,356	603.47	45.05	11,316	15.09
Total	632.01	36.32	38,349	617.79	39.27	11,309	14.22
2004 Grade 6							
Reading	666.73	40.51	38,339	659.83	41.62	11,671	6.90
Language	663.38	43.13	38,339	656.21	43.80	11,670	7.17
Math	668.95	49.04	38,319	660.79	49.82	11,659	8.16
Total	666.37	39.36	38,318	659.00	40.13	11,655	7.37

Table 60O. CTBS Descriptive Statistics for 2001 Grade 6 and 2004 Grade 9

2001 Grade 6	Matched			Unmatched			Mean Difference
	Mean	S. D.	N	Mean	S. D.	N	
Reading	666.34	40.61	36,864	651.51	41.88	11,745	14.83
Language	663.71	42.59	36,861	647.16	42.71	11,745	16.55
Math	666.95	48.55	36,851	647.49	50.71	11,733	19.16
Total	665.69	39.17	36,841	648.79	39.99	11,719	16.9
2004 Grade 9							
Reading	689.80	38.10	36,780	678.54	40.97	14,733	11.26
Language	682.90	45.95	36,780	669.38	47.66	14,730	13.52
Math	705.84	53.26	36,771	689.07	53.72	14,718	16.77
Total	692.87	40.51	36,748	679.10	41.99	14,696	13.77

Table 61P. CTBS Correlations Between 2001 Grade 3 and 2004 Grade 6

Variables	1	2	3	4	5	6
Grade 3						
1. Reading	1.00					
2. Language	*.73*	1.00				
3. Math	*.66*	*.67*	1.00			
Grade 6						
4. Reading	**<u>.64</u>**	**.62**	**.58**	1.00		
5. Language	**.61**	**<u>.62</u>**	**.57**	*.74*	1.00	
6. Math	**.57**	**.59**	**<u>.66</u>**	*.67*	*.66*	1.00

Table 62P. CTBS Correlations Between 2001 Grade 6 and 2004 Grade 9

Variables	1	2	3	4	5	6
Grade 6						
1. Reading	1.00					
2. Language	*.74*	1.00				
3. Math	*.68*	*.66*	1.00			
Grade 9						
4. Reading	**<u>.68</u>**	**.66**	**.61**	1.00		
5. Language	**.62**	**<u>.63</u>**	**.59**	*.73*	1.00	
6. Math	**.62**	**.60**	**<u>.73</u>**	*.67*	*.64*	1.00

Table 63Q. CTBS Descriptive Statistics by Gender

Year/ Grade:	Sub- Group:	Reading				Language				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
2001 3rd	Male	637.77	42.85	19,084		632.01	38.11	19,081		617.82	43.19	19,076	
	Female	643.62	40.72	18,955	-.14	641.38	38.66	18,955	-.24	619.26	40.40	18,952	-.03
2001 6th	Male	662.58	41.31	19,066		657.81	43.33	19,066		667.63	51.81	19,054	
	Female	670.89	39.27	18,946	-.21	668.94	42.20	18,946	-.26	670.26	46.04	18,938	-.05
2004 6th	Male	662.76	41.53	18,095		658.63	42.99	18,093		665.43	51.16	18,088	
	Female	669.88	39.27	18,687	-.18	668.70	41.57	18,686	-.24	668.47	45.74	18,681	-.06
2004 9th	Male	682.89	38.28	18,039		674.39	46.59	18,039		707.10	55.04	18,034	
	Female	696.52	36.69	18,656	-.36	691.18	43.77	18,656	-.37	704.68	51.42	18,653	.05

Table 64R. CTBS Regression Results Showing Gender Effects

Predictors:	**2004 CTBS$_2$ 6th Grade**								
		Reading			Language			Math	
	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2001 CTBS$_1$ 3rd									
Step 1: Reading	.64	.41							
Step 2: Gender	.06	.41	.00						
2001 CTBS$_1$ 3rd									
Step 1: Language				.62	.39				
Step 2: Gender				.05	.39	.00			
2001 CTBS$_1$ 3rd									
Step 1: Math							.66	.44	
Step 2: Gender							.02	.44	.00
2004 CTBS$_2$ 9th Grade									
2001 CTBS$_1$ 6th									
Step 1: Reading	.68	.47							
Step 2: Gender	.12	.48	.01						
2001 CTBS$_1$ 6th									
Step 1: Language				.63	.40				
Step 2: Gender				.11	.41	.01			
2001 CTBS$_1$ 6th									
Step 1: Math							.73	.53	
Step 2: Gender							-.05	.53	.00

Table 65S. CTBS Descriptive Statistics by SES

Year/ Grade:	Sub-Group:	Reading				Language				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
2001 3rd	Lower	626.54	39.39	14,885		623.66	35.79	14,883		604.60	39.77	14,880	
	Higher	650.07	40.54	16,523	-.59	645.04	37.70	16,518	-.58	627.24	39.76	16,518	-.57
2001 6th	Lower	652.79	38.86	14,837		648.73	39.25	14,837		651.02	46.57	16,511	
	Higher	675.87	38.59	16,517	-.60	672.83	42.20	16,517	-.59	680.55	46.35	16,511	-.64
2004 6th	Lower	650.40	39.94	12,453		647.28	39.14	12,452		647.08	46.85	12,448	
	Higher	673.13	37.95	14,937	-.58	670.62	41.40	14,937	-.58	675.36	45.69	14,933	-.61
2004 9th	Lower	674.82	37.65	12,340		665.82	42.87	12,340		682.31	49.17	12,328	
	Higher	696.08	35.76	14,897	-.58	689.98	44.39	14,897	-.55	715.88	50.81	14,900	-.67

Table 66T. CTBS Regression Results Showing SES Effects

		Reading			Language			Math	
2004 CTBS$_2$ 6th Grade									
Predictors:	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2001 CTBS$_1$ 3rd									
Step 1: Reading	.64	.41							
Step 2: SES	.12	.42	.01						
2001 CTBS$_1$ 3rd									
Step 1: Language				.62	.39				
Step 2: SES				.12	.49	.01			
2001 CTBS$_1$ 3rd									
Step 1: Math							.66	.44	
Step 2: SES							.13	.45	.01
2004 CTBS$_2$ 9th Grade									
2001 CTBS$_1$ 6th									
Step 1: Reading	.68	.46							
Step 2: SES	.10	.47	.01						
2001 CTBS$_1$ 6th									
Step 1: Language				.62	.39				
Step 2: SES				.10	.40	.01			
2001 CTBS$_1$ 6th									
Step 1: Math							.72	.52	
Step 2: SES							.12	.53	.01

Table 67U. CTBS Descriptive Statistics by Race

Year/ Grade	Sub-Group:	Reading				Language				Math			
		M	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*	*M*	*SD*	*N*	*ES*
2001 3rd	White	643.69	41.56	32,544		639.39	38.24	32,541		621.59	41.32	32,536	
	African American	620.10	39.05	4,414	.59	617.72	36.58	4,413	.58	596.57	39.51	4,411	.62
	Hispanic	631.32	40.11	370	.30	629.26	37.30	370	.27	613.74	40.03	370	.19
2001 6th	White	670.01	39.63	32,486		666.44	42.84	32,486		672.76	48.04	32,470	
	African American	643.26	39.18	4,391	.68	641.25	38.63	4,391	.62	640.78	47.49	4,388	.67
	Hispanic	658.35	39.19	413	.30	658.89	41.85	413	.18	663.01	46.37	413	.21
2004 6th	White	669.50	39.68	31,587		666.56	42.23	31,585		670.87	47.81	31,579	
	African American	640.43	39.06	3,842	.74	639.90	38.79	3841	.66	634.51	47.93	3,837	.76
	Hispanic	658.62	42.09	306	.27	657.45	37.69	306	.23	657.91	43.92	306	.28
2004 9th	White	692.22	37.32	31,457		685.58	45.51	31,457		709.72	52.29	31,454	
	African American	669.25	37.70	3,820	.61	659.98	43.33	3,820	.58	672.74	48.04	3,816	.74
	Hispanic	684.48	36.71	352	.21	676.61	42.83	352	.20	690.42	51.55	353	.37

Table 68V. CTBS Regression Results Showing Race Effects (African American/White)

	2004 CTBS$_2$ 6th Grade								
	Reading			Language			Math		
Predictors:	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
2001 CTBS$_1$ 3rd									
Step 1: Reading	.64	.41							
Step 2: AA/W	-.10	.42	.01						
2001 CTBS$_1$ 3rd									
Step 1: Language				.62	.39				
Step 2: AA/W				-.08	.39	.00			
2001 CTBS$_1$ 3rd									
Step 1: Math							.66	.44	
Step 2: AA/W							-.09	.45	.01
2004 CTBS$_2$ 9th Grade									
2001 CTBS$_1$ 6th									
Step 1: Reading	.69	.47							
Step 2: AA/W	-.04	.47	.00						
2001 CTBS$_1$ 6th									
Step 1: Language				.63	.40				
Step 2: AA/W				-.05	.40	.00			
2001 CTBS$_1$ 6th									
Step 1: Math							.73	.53	
Step 2: AA/W							-.05	.53	.00

Table 69W. CTBS Regression Results Showing Race Effects (Hispanic/White)

Predictors:	Reading β	Reading R^2	Reading ΔR^2	Language β	Language R^2	Language ΔR^2	Math β	Math R^2	Math ΔR^2
2004 CTBS$_2$ 6th Grade									
2001 CTBS$_1$ 3rd									
Step 1: Reading	.63	.40							
Step 2: H/W	.00	.40	.00						
2001 CTBS$_1$ 3rd									
Step 1: Language				.62	.38				
Step 2: H/W				.01	.38	.00			
2001 CTBS$_1$ 3rd									
Step 1: Math							.65	.42	
Step 2: H/W							.00	.42	.00
2004 CTBS$_2$ 9th Grade									
2001 CTBS$_1$ 6th									
Step 1: Reading	.67	.45							
Step 2: H/W	.01	.45	.00						
2001 CTBS$_1$ 6th									
Step 1: Language				.62	.39				
Step 2: H/W				.00	.39	.00			
2001 CTBS$_1$ 6th									
Step 1: Math							.72	.52	
Step 2: H/W							-.01	.52	.00

APPENDIX X

Table 70X. Comparison of Same Subject Correlations for KCCT and CTBS

_____

<u>Elementary School to Middle School</u>

	<u>KCCT</u>	<u>CTBS</u>
Math—Math	.68	.66
Reading—Reading	.64	.64

_____

<u>Middle School to High School</u>

	<u>KCCT</u>	<u>CTBS</u>
Math—Math	.73	.74
Reading—Reading	.69	.68

_____